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AS THE EDITOR SEES IT

INCREASED sale of home washing machines and a steadily expanding group of customers for self-service laundrettes, if the trend continues, might eventually have a considerable effect on the sale and on the type of soaps and detergents used for washing America's clothes. Although the commercial laundries naturally do not look with favor upon these new upstarts in the clothes-washing business and though their associations insist that they are holding their own and losing no business, we note that they are digging in to defend their position. And advices from other sources indicate that the commercial laundries, especially the smaller units have been losing business steadily over the past year.

Any number of new detergent compounds stated to be made especially for use in the small washing machines have come on the market to meet the new demand. As usual, the housewife insists that these products must produce a good lather. Whether alkali-soap mixtures, detergent or what not, if they do not lather, *per se* they are no good. Mrs. Housewife has determined this and the manufacturer might as well make up his mind that she is right, whether she is or not. But a foamy lather alone is not the only problem. A hundred-and-one other formulation and sales problems likewise face the manufacturer who casts his eyes upon this market, problems that time and experience alone will help him solve.

As for the attitude of the average soaper toward this changing market, any trend toward a greater use of soaps or detergents by the average housewife is welcome. She invariably ignores label directions and uses far more soap or detergent than is needed to do the job. Her consumption of soap per dirty shirt is far ahead of the more efficient commercial laundry, and even more so when the latter undertakes to bleach out soil rather than wash it out, a quaint but not uncommon practice. In short, the uptrend in

the use of the small washing machine is not likely to hurt the soap business. And as for profit margins, we feel that the detergent specialties have something of an edge on 88% tallow chip.

TO market, to market, to grab a quick dollar! And in order to make a quick dollar, the new product must get to market before those of competitors, its advent must be accompanied with a lot of ballyhoo, and its opening advertising blast must not only knock all competition cold, but must likewise knock the prospective buyer right off his or her chair. It has become almost an old and well-established American merchandising custom, a custom which has brought more products to market prematurely than all other reasons put together. And a custom which has been mighty costly to many a manufacturer, both large and small.

Off hand, we can think of about four or five soap and detergent products which have been marketed within the past few years that never should have left the factory. Mostly, these came from smaller manufacturers stampeded into the market by competition, products the research on which was probably done in the advertising department and not in the laboratory. But, one product which we have in mind is that of a larger manufacturer of excellent national reputation. How, in the name of good judgment, this particular product ever got out of the research department in the first place is a mystery. Obviously faulty, we can only guess that it was rushed to market in order to beat competition to the punch. It cannot help its manufacturer's good reputation, and, we hazard a guess, will shortly be back in the research laboratory where it still belongs.

With all the glaring examples of hasty and premature marketing which show up from year to year, the parade never seems to end. Always, there is a new make-shift quickie product to step into the picture to replace those predecessors

which have passed from the market. We imagine that it happens in every industry and that soap and detergent products have had no monopoly of the practice. And we also imagine that it affords manufacturers of the old-line soaps quite a bit of amusement. But as long as there is competition and a fight for the public's dollar,—and human nature being what it is,—this scramble to market apparently will go on, disappointing and costly though it may be.

WITH each passing month, repercussions from the now famous U. S. Supreme Court cement case or basing-point pricing decision become more numerous and more complicated. The decision which in effect bans freight equalization and delivered prices, has brought practical chaos in certain lines of business. Where base-point or delivered pricing have been trade custom for decades in many lines, the success of the Federal Trade Commission in having the Supreme Court outlaw them as unfair methods of competition, has thrown a monkey-wrench into the sales machinery of these industries.

Confusion and uncertainty as to the exact application of the decision make quick clarification imperative, obviously a job for Congress which is already looking into the matter. As things stand now, and as generally interpreted by those manufacturers with whom we have discussed the matter, the decision actually localizes the distribution of every plant in the country. Conceivably, through the new competitive set-up which it imposes, the decision could alter the entire complexion of American industry at the expense of efficiency. The sooner Congress acts, the better it will be for everybody.

NOTHING is more depressing to us than an empty soap dispenser, except possibly an empty scotch bottle. During the war when labor was scarce, and porters were serving their country at twenty dollars per day in shipyards and airplane factories, little was thought of it. Just another war casualty. Cake soap was put out on the washstands where the first messenger boy could appropriate it, and the customer washed his hands with plain water and

dried them on his pocket handkerchief. In fact, this procedure was often preferable to some of the concoctions with which liquid soap dispensers were filled during the emergency. Once or twice, we suspected that these fluids were a four or five per cent solution of caustic soda, colored pink to give a touch of the esthetic.

But, today the war is over, although the price of new hats and roast beef might mislead us into believing that the shooting is still going on. Labor is slightly more plentiful and porters are available at wage scales not more than twenty per cent over those paid to editors and bank tellers. Hand soaps of all kinds, powder, liquid and cake, can now be bought at reasonable prices. In fact, sanitary supply salesmen are scouting the highways and by-ways searching out those with empty soap dispensers. But still we find them all over, not as often as during the war, but often enough. Maybe these porters should be spoken to, quietly but firmly, in the general interest of maintaining a high level of hand soap consumption.

PREDICTIONS have been made that coconut oil "will be running out of our ears" come early 1949, but this does not help those soapers who must enter the market now. Due to the Pacific Coast shipping strike, the situation has become thoroughly scrambled. Spot stocks have been practically nil for some time and applications for import licenses, WFO 63 having been temporarily suspended following an appeal by the Soap and Detergent Manufacturers Association,—called for three times the quantity available for shipment. Ceylon oil only,—no Philippine oil,—was stated to be available for prompt shipment. But these Ceylon stocks having been oversubscribed, as it were, Washington has suggested the substitution of African palm kernel and babassu oil.

That the average soaper does not know the score in this latest oil and fat tangle, and views it with suspicion, is obvious. He wonders just what is happening, what is behind the scenes, if anything,—which in turn leads us to ask once again if it isn't time now to ditch IEFEC, rescind regulations, and end all this oil and fat monkey business?

Specialty Soap Lines

By Paul I. Smith

A review of the newer developments in the manufacture of items related to soap making

THE manufacture of speciality cleaning agents entails the use of the minimum equipment, such as crutchers or mixers, filling machinery and hardened steel moulds for hand cakes. To soapers with little plant and factory space the production of these compounds presents a welcome opportunity for profit making and prestige building.

There are literally dozens of different products which can be made simply by the small soaper and it is proposed in this article to deal with some of the most promising and remunerative lines. These can be listed as follows:- scouring powders and soaps; abrasive hand cleaners; dish washers for mechanical and hand use; lavatory bowl cleaners; glass polish cleaners; detergent briquettes, cement cleaners, and, of course, the so-called universal cleaners which are recommended for many domestic purposes.

It is true that recipes for most of these lines can be obtained by merely looking up the appropriate reference books, but these, although useful guides are not in themselves sufficient and seldom up to date. The manufacturer is most interested in "know how" which will enable him to produce compounds with distinctive properties. Such references should advise as to the new or alternative ingredients of value in influencing the behavior of the product under actual use conditions.

There is very keen competition in the speciality cleaning field and sales invariably go to those manufacturers who are producing cleaners that are able to do the job, possess a

good shelf life, have a pleasant smell and feel when used, and are attractively packaged.

Scouring Powders and Soaps

THE main requirements of a good scouring powder may be summarized as follows:-

(1) White in color and free flowing. Experience has shown that grey looking abrasive powders, no matter how satisfactory they are in use, create a bad impression and do not sell as well as those that are white. The manufacturer should, therefore, aim at producing snow-white powders that are of uniform particle size and able to flow freely from perforated containers. Powders that clog, particularly under damp conditions of use, cause annoyance to the user and this has an inevitable depressing effect on sales.

(2) The abrasive action of the powder must be such that uniform and easy removal of surface dirt is effected without scratching. Serious damage is frequently done to marble and terrazzo floors by the presence in the scouring compound of either too hard an abrasive or the use of one made up of irregular and sharp-faced particles. The use of sand, while attractive from the cost angle, is somewhat risky and the most suitable abrasives are pumice, feldspar and silicex.

(3) The grease cutting property of the cleaner should be of a high order. To achieve this it is necessary to ensure that not only the right kind of alkali is present, but also the correct proportion. The common alkali additives used are: sodium carbon-

ate, sodium sesquicarbonate, trisodium phosphate, sodium metasilicate, pentahydrate, tetrasodium pyrophosphate and sodium silicate and sodium sesquicarbonate. It is known that the presence of silicated detergents in the cleaner is of considerable value as they are superior for preventing the deposition or redeposition of soil pigments on clean surfaces.

(4) The detergent ability of the product must be of a high order and it is wise to include in the formula a small percentage of a good synthetic detergent and wetting agent. A suitable additive can readily be found in powder, flake and bead form which will lend itself to blending with other materials. A synthetic detergent will function efficiently in hard or soft water, hot or cold, alkaline or acid solution. Most important is the ability of the detergent to prevent trouble caused by the formation of soap suds on clean surfaces, to improve cleaning and reduce rinsing time after the abrasive compound has done its work. The soap present should preferably be a good coconut oil soap which dissolves easily in hot or cold water and lathers freely. A useful additive is pine oil although this has a softening action on asphalt floors if present in heavy concentrations.

A useful formula for a good scouring powder is as follows:-

- 5% coconut oil soap.
- 2½% sodium silicate.
- 3½% sodium carbonate.
- 85% mixed abrasives.
- 1½% synthetic detergent and wetting agent.
- ½% pine oil.

(Balance moisture).

When making an abrasive soap which may be employed for general cleaning purposes, including hand use, the points to bear in mind are as follows:-

(1) The cake must have a smooth and attractive appearance and be free from cracks.

(2) It should give a good lather and have a quick cutting action on grease.

(3) The cleanser must last well, that is, have a low "spendability" index. This means that the detergent present must not easily be precipitated by hard water chemicals, be absorbed too rapidly or the alkali present be inadequate to neutralize acid dirt and saponify free fatty acids.

(4) The soap must not have a harsh effect on the skin when used as a hand soap. It is advisable, therefore, to reduce the percentage of sodium carbonate and make this up with sodium silicate and trisodium phosphate.

Abrasive Hand Cleaners

THERE is a great temptation to produce a hand cleaner consisting largely of sand bound together with bentonite and a little soap. Such a product is of no value at all and its production will quickly discredit the manufacturer. A good abrasive soap cake should consist of at least 70% soap base to which can be added two percent synthetic detergent, such as one of the alkyl aryl surface active agents. Some of these are even more effective in water with a hardness of 300 p.p.m. than in distilled water. One of the most effective alkalies for hand cleaners is sodium metasilicate which, although initially more expensive than sodium silicate, yields more chemical value per pound than any other detergent silicate. A new anhydrous metasilicate is readily soluble in all practical concentrations at all practical temperatures, has a total alkalinity of not less than 50% (reckoned as Na_2O) and yields a pH of 11.55 in a 0.06% solution. About 3½% sodium metasilicate (anhydrous) is usually sufficient to give good results. The abrasive may consist of a mixture of pumice (10%),

sand (12%) and bentonite (3½%). The addition of a small percentage of lanolin, about 2½%, improves the emollient properties of the soap and helps to prevent harshness due to the presence of comparatively large quantities of free alkali.

Dish Washing Compounds

MODERN dish washing preparations, available preferably in powder form, consist essentially of a strong solution of alkali containing a synthetic detergent. The alkali may be a mixture of several compounds, such as trisodium phosphate, sodium carbonate or sesquicarbonate, tetrasodium phosphate, sodium metasilicate or sodium sesquisilicate, borax etc. The blending of alkalies is most important, particularly if quaternary ammonium compounds are present, as these are rendered inactive as germicides if soaps formed by saponification of residue greases are present. It is necessary, therefore, to use buffers with strong alkalies such as trisodium phosphate and a useful formula is as follows:-

- 50% trisodium phosphate.
- 20% sodium sesquicarbonate, or carbonate.
- 5% sodium metasilicate.
- 25% tetrasodium phosphate.
- 3% quaternary ammonium compound
- 2% nonionic surface active agent, e.g. an alkylated aryl polyether alcohol.

The aim of the manufacturer should be to produce a dish washing solution of pronounced germicidal value and with a pH of about 10.

The inclusion of tetrasodium phosphate is always recommended. This chemical prevents alkali precipitates, regenerates lime soaps, disperses soil more effectively than most alkalies, permits free rinsing and gives better emulsification of fats and oils.

Some manufacturers of hand dish washing preparations are now using mixtures of soap powder (low titer) and a synthetic detergent, such as one of the alkyl amido alcohol sulphates, together with a buffered alkali content of about 25%. This kind of product possesses excellent emulsifying and wetting properties

and dishes washed in the solution dry with a highly lustrous surface. Moreover, and this is a most important consideration, a soap plus synthetic dish washer is not so hard on the hands as the straight forward synthetic detergent plus alkali preparation.

Many cheap mechanical dish washing compounds are often little more than mixtures of sodium carbonate and trisodium phosphate with a problematical percentage of synthetic detergent, often less than three percent. It is generally considered a disadvantage for mechanical dish washing solutions to develop foam or suds.

Lavatory Bowl Cleaners:

THE base of all these compounds is sodium bisulphate, sometimes known as acid sulphate. This is a colorless crystalline substance freely soluble in water, both hot and cold. Some difficulty in the use of this chemical may be experienced as it has a tendency to cake. This prevents its free flow from the container. The addition of a small percentage (about 0.75 to 1.0%) of pine oil helps to prevent clogging. Some manufacturers like to add about one-half one percent surface active agent, such as one of the alkyl aryl sulphonates or alkyl amido alcohol sulphates which are stable in acid as well as alkaline solutions. These synthetic detergents are available as powders or pastes and they may be mixed with the bisulphate in a heavy duty mixer. Other useful ingredients in the cleaner are sodium chloride, aluminum sulphate, sodium perborate and sodium pyrophosphate. Sodium carbonate must not be used with the bisulphate.

Glass Polish Cleaners:

THESE are essentially spirit solutions of a synthetic detergent in which about 10% of ammonia has been dissolved. A suitable detergent is one of the alkyl aryl sulphonates which in the proportion of 0.2% is compatible with the usual solvents such as isopropyl alcohol or ethyl acetate. Main object of adding the surface active agent is to facilitate

(Turn to Page 159)



IT is a familiar fact that all of the commonly used fabrics lose their brightness and become slightly yellow in the course of time. The effects of sunlight, dirt and especially of repeated laundering contribute materially to this undesirable look. To counteract these jaundicing effects, bluing has long been standard items in both the home washtub and in the commercial laundry. However, during the last year or so, the dominating position of the familiar types of bluing has been challenged by products using blue-fluorescing compounds rather than the usual blue pigments and dyes.

The market for bluing is a fairly constant one. Large quantities are used by the thousands of commercial, institutional and industrial laundries scattered throughout the country. Substantial quantities are also consumed by the linen supply plants and the growing number of diaper services found in the larger cities. Of course, a very large volume of bluing products goes directly into the home washtub or the automatic washing machine. As indicated in a survey reported recently in the *Wall Street Journal*, (1) current economic factors have created a definite wash-it-at-home trend. This is reflected in the larger cities by the growth of the "Launderettes" and similar services. Flake and other forms of bluing are available to meet the specific requirements of such automatic equipment.

Useful in both machine and tub, flake bluing is becoming more popular. (2)

It has been said that a fabric which has been properly manufactured and always properly laundered does not need bluing. Unfortunately the factors which make for perfect conditions are seldom encountered and the use of bluing has become a very well established practice. Technically speaking, bluing may be described as a tinting or surface dyeing operation. Functionally, bluing serves to create the illusion that goods appear whiter and brighter than they actually are. Bluing does not remove the cause of the yellow tint, but merely produces a gray to which the eye is less sensitive and which appears white. (3) Physicists and colorists explain (4) this phenomenon by pointing out that bluing, by absorbing light at one end of the spectrum, cancels out the yellowness resulting from absorption by the cloth of the other end of the spectrum.

This whitening and brightening effect can be spoiled by the use of excessive quantities of bluing—a common fault in household washing. It can also be cancelled out by the use of a blue that is not removed or "discharged" by subsequent washings, so that after repeated laundering a discoloration may actually build up over a period of time. (5) Eventually this accumulation or combined absorption has a decided influence on whiteness; causing an intermediate, visible shade of "tattle-tale" gray. Note-

worthy in this connection is Lyndon's (6) observation that if the goods are off-color in the direction of gray rather than yellow—a condition often encountered in hard-water areas—bluing may simply aggravate the condition.

In commercial laundry methods bluing is applied prior to the final rinsing. In most cases, especially if the goods are to be ironed, the wash load is "soured" before bluing. This consists in the use of acidic compounds, called sours, which serve to neutralize alkalinity retained in the load from the washing process and to remove certain types of stains not previously affected.

Sours are not used in home laundering methods and the bluing is generally applied just before the final rinsings. A reversal of this method, and one that is especially suitable for use with automatic washers, is seen in the application of the more modern flake-type bluing. These blue the clothes during actual washing. The flakes are first dissolved in hot wash water. After this, the bluing solution is added to the regular soap, worked into full suds, and the washing is done as usual.

Composition of Flakes

EXAMINATION of the two leading brands of bluing flakes indicates that they consist essentially of soap flakes tinted with suitable quantities of blue coloring compounds—most probably aniline dyes. Of definite interest in connection with these flake products is a method (7) for making washing and bluing powders or tablets. These may be made of a soap or a cleansing agent like trisodium phosphate. Three kinds of bluing may be used; namely—ultramarine blue, Prussian blue, or aniline blue. The last is considered best because it gives a more attractive finish. The proportions recommended are one pound of aniline blue to 2,000 pounds of compound.

Bluing is sometimes typed according to whether the active coloring material is soluble or insoluble in water. Thus, insoluble types comprise products based upon ultramarine blue and other pigments, while soluble types are made with aniline blues or appro-

prate mixtures of suitable dyestuffs. Laundry technologists, however, use another system. As explained by Johnson (5) of the American Institute of Laundering, laundry blues are normally classified into two types: (a) non-sour types applied to wash loads without the addition of a sour, and, (b) sour blues. When non-sour blues are used, the tint is not altered by alkaline variations. Sour blues, however, necessitate the proper use of a sour to neutralize alkalinity and bring about proper development of tint. With water high in bicarbonate alkalinity, souring is of great importance in relation to effective bluing. Expert commercial laundrymen know (8) that the sour is often the prerequisite to good bluing.

The Federal Specification (O-B-491) for laundry bluing uses the system, as follows:

Type I. Non-Sour;
Class (A)—Balls, blocks or cubes
Class (B)—Powder or tablet form.
Type II. Sour, powder or tablet form.

In setting forth the materials used in these types and classes, the specification states that type I, class (A) laundry bluing shall be a good grade of ultramarine blue. Laundry bluing type I, class (B) and type II, must be water-soluble aniline blues. It is also noted that the insoluble, non-sour type of bluing based on ultramarine blue is generally used for household or small batch bluing. The non-sour bluing made with water-soluble aniline blue is usually employed by laundries for flat work, and is not altered by the presence of dilute alkali. The sour bluing, it is stated, is generally used by laundries for shirts, collars, and other starched work and is not altered by the presence of dilute acids. It is also used for flat work.

Ultramarine Most Used Blue

VARIOUS pigments, including ultramarine blue, Prussian blue, smalt (Saxony blue) or cobalt blue, are used in the production of the insoluble, non-sour types of laundry bluing. With little, if any, sales to commercial units, such bluing find their greatest outlet in the household market. As is already evident, ultramarine blue is by far the most im-

portant coloring agent used in the manufacture of such products. It is fast to light and alkalies, but is readily acted upon by weak acid solutions. Aging does not affect ultramarine and it gives a pleasing tint to the clothes. (3) Also noteworthy is the fact that this pigment is not affected by the hot iron. (9)

Since this bluing material is used as a suspension and not as a solution, it is sometimes difficult to obtain even bluing and to prevent streaking by larger particles of pigment. To help obtain better suspensions of fine particles, it is common practice to put the ball, block or cube of bluing into a bag of canon flannel or similar material. This is moved through the vessel of cold water until the desired color is produced; the fabric serving to retain the coarser particles. Some manufacturers market their bluing in bags. One brand known to generations of housewives has long been packaged in this way.

Recognition of this method of using ultramarine laundry blues is given in the Federal Specification's color test, which is essentially as follows: Place a portion of the sample in a small bag made of two layers of cotton flannel. Tie the bag securely and then agitate it through a volume of water until a faint blue-colored homogeneous suspension is obtained. Pour the suspension into a long test tube and observe the color by looking down into the tube against a white background. The color should be a reddish blue.

The production of ball, block or cube laundry blues or the so-called "bag blue" consists chiefly in mixing the ultramarine with a suitable binder like glucose, glucose and dextrin, or starch. Carbonates or other materials are sometimes used as fillers. Thus, to make a good quality product, the following mixture (9) may be employed; the ingredients being thoroughly ground together:

Ultramarine	30 parts
Sodium bicarbonate	20 "
Glucose	6 "

The resulting mixture may be rolled into sheets and cut into cubes or tablets of the desired shape and size.

For large scale production, this basic mixture can be molded by machine.

Another variation calls (10) for the production of a thick paste from:

Ultramarine	60 parts
Sodium carbonate	40 "
Glucose	10 "

Considerably more elaborate products are possible, but they offer few advantages over the simple preparations such as the above. These simple mixtures are also quite suitable for making bag-blue; the blocks of bluing being molded by machine. These molded blues are packed in bags by means of a wooden block which has a circular hole sunk in it somewhat larger than the piece of blue to be packed. A piece of cloth is laid over the hole, the molded bluing is placed in position and pressed into the hole. The cloth is gathered together over the top and tied to form a bag.

Of course, ultramarine can be made available as a powder. It may be sold as such or the powder may be diluted with substances like starch or sodium bicarbonate. (11) Prior to use, the powder bluing is made into a paste and is stirred well while being added to the bluing water. Prepared laundry blue pastes, to be diluted with water, are also quite feasible, as indicated in the following procedure: (10)

Glue	5.0 parts
Water	10.0 "

Soak cold, then warm to dissolve. Mix with a warm solution of:

Yellow dextrin	5.0 parts
Water	3.0 "
Glycerine	5.0 "
Phenol	0.2 part
Finally thoroughly grind in:	
Ultramarine blue	75.0 parts

That bluing manufacturers are cognizant of new developments is evident in novel ideas for merchandizing bluing. According to Neidig, (2) one such idea is the incorporation of a blue pigment with a mixture of alkali and synthetic detergent. Although the product requires further improvement, it is said to have found considerable customer approval.

Prussian blue is the next most important pigment for making blu-

ing, but its utilization hardly approaches that of ultramarine. It is inexpensive and gives a fairly permanent tint. It has the disadvantage of being an iron compound, which is affected by alkalies. Therefore, when it is used on clothes that have not been thoroughly rinsed free of alkaline soaps and washing powders, Prussian blue is decomposed to form rust-like stains or streaks. (3,12)

It has long been common practice to mix Prussian blue with oxalic acid to bring the pigment into solution. Thus a common form of bluing powder, to be sold in half-ounce packets, consists of: (9)

Prussian blue	20 parts
Oxalic acid	10 "

If a liquid preparation is wanted, either of the following formulas (13) will serve: the first providing a more concentrated product.

	I	II
Oxalic acid	4 oz.	1 oz.
Prussian blue	1 lb.	4 oz.
Water	2 qt.	1 gal.

The oxalic acid is first dissolved in the water and then the color is added.

Since the use of oxalic acid is often objectionable and presents a toxic hazard, it may be replaced by citric or tartaric acids. Six parts of either citric acid or tartaric acid is considered equivalent to eight parts of oxalic acid.

As pointed out in a British reference text, (3) a novel effervescent or "bubbling" blue for laundering can be prepared from:

Prussian blue	50 parts
Sodium bicarbonate	105 "
Tartaric acid	30 "
Powdered talc	15 "
Stearin	1 part
Alcohol	80 parts

Grind all the solids as fine as possible, titrate together and work in the alcohol. Pass the mass through a granulating sieve; spray the granules with a little thin liquid paraffin and then let dry.

Aniline Dyes More Costly

THE soluble aniline dyes used to make non-sour and sour type bluing are more expensive than pigments. This is compensated for a large

extent by the superior tinctorial powers of the dyes, their uniformity and their greater freedom from specking and streaking. There is a large number of blue dyes on the market which may be used singly or in combination for the production of laundry bluing, including Acid Violet, Methyl Violet, Victoria Blue, Methylene Blue and various vat blues. (5) Naturally the properties of the bluing will depend on the dye or dyes selected. Some are fast to both acids and alkalies; some are fast to one, but not the other. This last, of course, is a determining factor with regard to their usefulness for making sour and non-sour types of bluing. Some dyes will not stand ironing, but other soluble blues are not affected by this operation.

The dyes are made in a great variety of tints, varying from a reddish blue to a pure blue. Noteworthy in this connection is the fact that a reddish blue is the color required by the Federal Specification for solutions of the soluble aniline blues used in both the non-sour and sour types of bluing. A similar color requirement is given in the Pennsylvania bluing specification. (14) However, manufacturers generally supply commercial laundries with two shades of bluing—a pure blue and a reddish blue. Some also make an "all purpose" shade.

The dyes may be used in their pure powdered form or the powder may be mixed with standardizing salts like sodium chloride or sodium sulfate. The Pennsylvania specification (14) states that where powdered bluing is required, it must be free of sodium and potassium ferricyanide, direct cotton dyes or naphthol blue black dye. A one per cent solution in distilled water should have a maximum of 0.1 per cent of insoluble matter.

Sometimes the blue dye is combined with other materials to obtain improved effects. For example, according to one patent, (15) level bluing is obtained by using a laundry bluing composition made by impregnating ammonium sulfate with about 0.2 to 0.8 per cent of an acid blue dye.

Bluing tablets can be made by

compressing suitable dyes with an appropriate excipient or binder. Sometimes these shaped bluing consist of starch tinted with blue dye and made into a paste with gum arabic. The mixture is dried and cut into blocks or tablets of the desired size (3) By another method, (16) one part of soluble aniline blue is mixed with 15 parts of powdered starch and the mixed powders are made into a stiff paste with glucose syrup. The product is rolled out into a thick sheet and cut into cubes of the desired size. These are dried by gentle heat.

Recently introduced is the idea of pelleting bluing into individual tablets suitable for bluing one wash load. It is said (2) that this idea has been accepted readily by owners of washing machines, but for ordinary tub-washing the tablet is somewhat slow-dissolving.

Easy and convenient to use, liquid bluing based on aniline blues are widely used in commercial laundries. Standards for such products as well as considerable valuable information are given in the Pennsylvania Specification B.91 for liquid laundry bluing. (14) Such a bluing is to be used for either sour or non-sour tinting in laundry practice. It is required that the liquid bluing shall be of uniform quality so that when it is mixed in the proportion of two fluid ounces (containing the equivalent of one ounce of the dry blue) to two to three gallons of water it will yield a stock solution. When this stock solution is used in the proper dilution under correct conditions, it should tint clothes to a bright white. The color must be fugitive to washing. Under the detailed requirements, the product must be free of sodium or potassium ferricyanide, direct cotton dyes or naphthol blue black. The bluing must be suitable for use over a pH range of four to 7.2.

Liquid bluing are often marketed as 1.0 to 1.5 per cent solutions of aniline blue. To insure penetration and uniform dispersion it has been suggested (17) that suitable wetting or surface active agents be added to the bluing. For example, one to two ounces of an alkyl aryl sulfonate (e.g. "Santomerse No. 1") may be added

advantageously to ten gallons of bluing solution.

Combination Products

THE patent literature shows that there have been a number of attempts to employ bluing in double purpose products. For example, one patented product (18) has been designed to serve the double function of whitening the clothes and softening the water; the compound being employed in the washing machine or washtub along with the soapy water in which clothes are ordinarily washed. Borax is preferred as the water-softening agent, but other materials like trisodium phosphate or sodium carbonate may be substituted. The blue dye is best carried by the crystals on their exteriors, but it may be distributed throughout the crystals if desired. The amount of blue dye to be used per unit of water-softener varies with the type of dye, but the coloring agent must be inert to soap, alkali or the softener and have but little affinity for cotton.

More common and more important commercially are combinations of sour and blue. One such dual-purpose product (19) consists of a mixture of six ounces of aniline dye to 100 pounds of boric acid; the proportions being adjustable as required. Claimed to be safe and easy to use for both commercial and domestic laundering, the product efficiently neutralizes the alkali present in the clothes, provides a thorough and even bluing, and cuts down the number of rinsing operations.

In other combination products (20) of this sort, the ingredients are adjusted according to the alkalinity of the wash water. Using more familiar souring agents, a typical composition for use in water of medium grade alkalinity is as follows:

Ammonium silicofluoride	159 parts
Sodium silicofluoride	183½ parts
Anhydrous dextrose.....	72½ "

This is sprayed with 10 parts of blue solution containing one pound of dry color per gallon of water and 1½ parts of sulfonated castor oil in 2½ parts of isopropyl ether. The final product is a dry, dustless, screened and readily soluble powder.

On occasion it has been suggested (9, 10) that pigment blue and small proportions of aniline blue be mixed to give more rounded laundry products, as for example in the following formula:

Ultramarine blue	35 parts
Soluble aniline blue	1 part
Sodium carbonate	30 parts
Corn syrup	7 parts

This is made into a paste with water, molded in suitable forms and dried with gentle heat.

A few years ago this idea was modified by the discovery (21) that the pigment could be combined with a blue fluorescent compound to yield superior whitening effects. It was found that best results were obtained with compounds of the coumarin group such as umbelliferone or methyl umbelliferone. Satisfactory results were obtained when one part of ultramarine was used with from 0.5 to 10 parts of beta-methyl umbelliferone.

The actual quantities of material required to achieve the desired results are very small. Thus, in the bluing of white textile materials which had been washed repeatedly in hard water, satisfactory results were obtained with bluing solutions containing only 0.01 per cent of the fluorescent compound and 0.004 per cent of ultramarine.

Blue Fluorescent Dyes

THE next step in this evolution was the elimination of the blue pigment entirely, depending solely upon a blue fluorescent dye for the illusion of whiteness. The principle behind this application is not new; methyl umbelliferone having been used earlier to eliminate the yellowish or off-white tint from fabrics, paper and other products. (22) In the new method (23) for "whitening" laundered goods, another group of blue-fluorescing dyes is used. They comprise the free acid and water-soluble salts of 4:4' di-benzoylaminostilbene—2:2 disulfonic acid and its nuclear substitution derivatives. Applicable to both home and commercial laundries, the improved whitening effect is obtained by immersing or rinsing the fabrics in a very dilute solution of the stilbene derivative, after the usual

washing procedure. The articles may then be dried and ironed as usual.

The most recent chapter in this new story is the addition of the blue fluorescent dyes to soap. As pointed out in patents (24) based on the addition of stilbene derivatives, the incorporation of such fluorescent compounds in soap completely obviates the need for using other bluing agent. In the patent description it is stated that the fluorescent substance has such an affinity for the textile as to remain fixed on it during the rinsings that form a normal part of the washing operation. In other words, enough of the compound remains on the fabric after washing is completed to impart the whitening and brightening affect.

Only minute quantities of the fluorescent compound are required to produce this action; proportions on the order of 0.001 to 0.1 per cent (based on the weight of the detergent) have been found adequate to produce the desired effect. However, too high a proportion of the stilbene derivative may cause discoloration of the washed textiles. The new soap combination is said to be especially advantageous for washing textiles made wholly or partly of cotton, linen or other cellulosic fibers.

In addition to the stilbene derivatives, triazines and modified umbelliferones are being used. Regardless of the chemical composition of these blue-fluorescing dyestuffs, often called optical bleaches, (25) they all work on the same principle. As explained in one report, (4) instead of absorbing visible light, as does bluing, the new compounds absorb ultraviolet radiations and re-emit the energy in the form of visible blue radiation. Hence, instead of subtracting from the total amount of reflection, they add to it. The yellowness is cancelled just as effectively, but the brightness level of the fabric is raised closer to that of the pure white.

At present two soap manufacturers are incorporating this "sunlight" ingredient in their products. (4, 25) How this and other applications of blue-fluorescent dyestuffs will affect the commercial and domestic laundry

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Survey Shows Soap Favorites

SOAP, shampoo and dentifrice buying habits, type and brand preferences, and in the case of shampoos frequency of product use, place of use and shifts in brand preferences are reported in a recently published survey conducted for *Redbook* magazine by Alfred Politz Research, Inc., New York. The survey, prepared by the magazine's marketing research department, bears the title "Cosmetics and Toiletries Buying Habits of 1035 *Redbook* Families." Copies are available by writing Don West in care of the magazine at 444 Madison Ave., New York 22. The survey is based on interviews conducted in 51 cities of over 2,500 population by 50 interviewers.

Dentifrice use among the 1035 persons interviewed rose 3.4 percent to 94.5 percent in the 1948 survey, as compared with that of 1946. Paste type dentifrice was most popular among users, 716 or 69.2 percent preferring it to powder, which was used by 207 persons or 20 percent. Liquid type dentifrice had 28 users or 2.7 percent and soda and salt, 26 users representing 2.5 percent of the total. More people said they were using dentifrice than two years ago, there still being 57 people or 5.5 percent not using a dentifrice, as compared with 8.9 percent in 1946. "Colgate" tooth paste with 300 users and 31.7 percent took top honors in the paste class. "Pepsodent," with 165 users and 17.5 percent was in second place, followed by "Ipana"—138 users, 15.7 percent—the only other brand with over 100 users, in third place. "Dr. Lyons," "Kolynos," "Squibb," "Iodent," "Listerine" and "Avon" finished in that order to round out the top 10 most widely used tooth pastes, according to the *Redbook* survey.

In the powder dentifrice class, "Dr. Lyons" was the overwhelming favorite with 78 users for a percentage of 38.6. "Pepsodent" was runner up in the powder dentifrice field with 35

users and a percentage of 17.3. Next was "Colgate"—27 users, 13.4 percent. Rounding out the top 10 powders were "Calox," "Polident," "Revelation," "Pebeco," "Avon," "Iodent" and "Listerine."

"Teel" was the only liquid dentifrice listed. It had 26 users for a total of 92.9 percent.

Shampoos received the lengthiest treatment of any product in the study. Facts and figures on where shampoos are bought, where they are used, how frequently, type of product used at home, brands of shampoos now used, brands of soap used for shampooing, type of shampoos used, use by men, brands of shampoo used by men, brands of soap used by men for shampooing and shifts in brand preference for shampoo and soaps for shampooing are reported in the study.

Of the 651 respondents answering the question relating to their source for shampoos, the largest number, 60.5 percent, said they purchased their shampoos in drug stores. Other outlets listed and their percentages in order of importance were: Department stores (18.4 percent); 5 & 10 cent stores, 9.1 percent; agent, 6.3 percent; beauty shop, 4.1 percent; other places, 2.7 percent.

Most of the women interviewed (608—58.7 percent) wash their hair at home, and, of these, about two out of three do it at least once a week. Shampooing at home every 10 days to two weeks is done by 244 women or 30.4 percent. 37 said they washed their hair more often than once a week and 29 said they shampooed their hair once or twice a month. Of the women having their hair washed at beauty parlors, 231 or 22.3 percent were in that category, while 196—19.0 percent—said they both washed their hair at home and had it done in beauty parlors.

The majority of women washing their hair at home use a shampoo, 684—85.1 percent,— of which better

than half prefer a liquid type shampoo. Almost 70 percent preferred the liquid type a year ago. Creme shampoos are rising in popularity according to the survey, with 45 percent or 307 (out of 682) women stating they are using cream shampoos this year as against 186 women—30.8 percent—who used them a year ago. Of the 307 women users of cream shampoos, almost two out of three prefer the product to be packed in a jar rather than a tube.

Soap was the second largest type of product used for shampooing. About 119 women, 14.8 percent, reported using it. Soap flakes for shampooing were reported used by eight women representing one percent.

Largest single shampoo brand used by the women questioned was "Lustre-Creme," which 99 out of 673 or 14.7 percent of the interviewed stated they preferred. Tied for second place in the brand popularity standings were "Drene" and "Halo." Both had 74 reported users, for individual percentages of 11. "Shasta" was in third place with 56 votes and a percentage of 8.3. "Prell" was fourth in the preference standings, 53 women giving it the nod for 7.9 percent. "Rayve Creme" was used by 44 women, 6.5 percentage of the total, while "Fitch," "Breck," "Conti" and "Kreml" finished in that order. Some 101 women, 15.0 percent, expressed preferences for "other" unnamed brands.

Women preferring straight soap for shampooing their hair gave "Ivory" the largest number of mentions: 38, or 32.4 percent of the 117 women who named a brand. "Lux" was in second place with 12 users and 10.3 percent. "Palmolive" finished third with nine mentions for 7.7 percent. The majority of men in families questioned in the survey used the same products as the women. Men using the same as women totalled 424, for a percentage of 46.8. Those using

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Aerial view of the Jersey City plant where CPP has centered its manufacturing since 1910.

A short history of

COLGATE - PALMOLIVE - PEET

ALMOST as old as the United States itself, Colgate-Palmolive-Peet Co., Jersey City, N. J., can trace its beginnings back 142 years to 1806 when William Colgate began making candles and soaps in a small shop near the southern tip of Manhattan Island. The growth of Colgate enterprise to its present position as one of the three largest and possibly the oldest soap company in America roughly parallels the expansion and development of the United States itself.

During the first half of the present year, which is considered somewhat of an "off year," Colgate-Palmolive-Peet Co., had net domestic sales of \$111,798,297, as compared with \$132,306,711 for the first six months of 1947. C-P-P increased its advertising budget to \$15,382,134 during 1947, from \$10,311,746 in the previous year, thus moving the company into third place in the standings of

national advertisers, according to a recent survey.

Besides its operations in the United States, Colgate-Palmolive-Peet Co. makes and sells soaps in a number of other countries, which brings its total sales figures considerably higher.

In discussing C-P-P and its products and operations, a recent issue of *Oilways*, house magazine of Standard Oil Co. of New Jersey had this to say:

"'Palmolive' soap is, perhaps, the only single brand of soap with world-wide sale. 'Palmolive' is sold at retail the world over with the same olive green paper wrapper and black band that is employed in the United States. In the United States alone 'Palmolive' is sold by about 330,000 retail shops. These comprise about 180,000 independent grocery stores, 68,000 general stores, more than 53,000 drug stores, nearly 10,000 super-service stores, about 2,500 food chain

stores and nearly 7,000 department stores. Besides being one of the three largest soap makers in the world, C-P-P is also a tremendously large manufacturer of synthetic detergents, kitchen cleansers, dentifrices, brushless shave creams, face powders and other toilet preparations. The company is also, naturally, a large producer of glycerine and recently has become important in the field of organic chemicals. CPP has been the sole selling agent for 'Vaseline,' 'Vaseline Hair Tonic' and other products of Chesebrough Manufacturing Company. The Chesebrough products are the only ones which CPP markets but does not make.

"Latest CPP product, and the first of its kind, perhaps, ready for general sale in the United States is 'Vel Beauty Bar,' a synthetic detergent type in cake form. The company has marketed 'Vel' granulated detergent for home use for more than 10 years. A heavy-duty granulated detergent

branded 'Fab' is now being introduced on a wide scale.

Colgate-Palmolive-Peet is the maker and marketer of such other products as 'Cashmere Bouquet Soap' (almost as well known throughout the world as 'Palmolive'), 'Colgate Floating Soap,' 'Klex,' a pumice soap, 'Cashmere Bouquet Talcum,' cold cream, lipstick and other beauty aids, 'Lustre Creme,' 'Palmolive' and 'Halo' (synthetic detergent type) shampoos, 'Colgate Dental Cream,' 'Colgate Tooth Powder,' a variety of shaving soaps and brushless shave creams under the Colgate and Palmolive names, 'Veto Deodorant,' 'Kirkman' and 'Octagon' soaps, 'Ajax,' 'Octagon' and 'Kirkman' kitchen cleansers, 'Crystal White Laundry Soap,' and 'Super Suds,' a granulated soap for home use.

"CPP also makes powdered toilet soap ('Palmolive') for dry-type dispensing machines, 'Colgate' and 'Badger' liquid soaps also for dispensers and special industrial soap and synthetic detergent products for commercial laundries, rug and carpet cleaners, ore flotation plants, textile mills and others such as dye houses associated with such mills. The industrial products bear such brand names as 'Arctic Crystal Soap' (flake and granulated), 'Pearl' flake and granulated soaps, a variety of special Colgate soap formulas and a line of synthetic detergents branded 'Arctic Syntex' and 'Ben Hur.'

"The organic chemical line consists of products made with fatty acids, glycerol and a number of other chemicals. CPP, for instance, makes such compounds as glyceryl monostearate,

ethylene glycol monostearate, also mono-oleates of glycerol, propylene glycol monocotate and others. Some of these chemicals are used in the company's products as blending, dispersing or stabilizing agents. They are, however, made primarily for use by other industries. In the paint industry, for instance, glyceryl monocotate may be employed to reduce pigment grinding time. Dipropylene glycol salicylate, a CPP chemical which is insoluble in water, is used in sun-tan preparations. The same product may be used in synthetic plastics to protect them from change due to exposure to sunlight.

"CPP manufacturing facilities are not only extensive throughout the world—five plants in the U. S. and others in 21 foreign countries—but the number of different products produced entirely in these plants totals almost 1,000. In its Jersey City plant, largest single soap works in the United States, more than 450 different types, sizes and packages of soap alone are made. In addition it is the largest CPP plant making synthetic detergents and toilet preparations. This plant, which is a 10-square block affair consisting of more than 50 buildings makes nearly 1,000 different perfumes for use by all CPP companies in soaps and other products.

"When the United States was only 17 years old and Thomas Jefferson was its president and De Witt Clinton was Mayor of New York (65,000 inhabitants), the name Colgate was first associated with soap. William Colgate made soap and candles in 1806 in a shop on Dutch street, not

far from Bowling Green on Manhattan Island. It was from this beginning that one of the three largest soap-making concerns in the world evolved. Colgate-Palmolive-Peet is the result of a merger in 1928 of Colgate and Company and the Palmolive-Peet Company. The latter resulted from a prior merger of the Palmolive Company and Peet Brothers.

"The business established by William Colgate was incorporated in 1808 as Colgate and Company which later became Smith and Colgate, then William Colgate and Company and in 1857 again Colgate and Company. By this time the concern owned solely by members of the Colgate family, had gone into the laundry starch-making business in a Jersey City plant, and also made itself important in laundry and toilet soap sales with 'Colgate's Pale,' 'White Windsor,' 'Brown Windsor' and 'Honey' brands. 'Cashmere Bouquet' was introduced in 1869 by which time the Colgates had discontinued making starch and confined their manufacturing to soap and perfumes and a few years later added a glycerine refining plant.

"The year 1873 was important for Colgate. It then entered the tooth paste field and also became sole selling agents for Robert Chesebrough's 'Vaseline.' Up to 1900, Colgate products were sold at retail as well as wholesale but in that year retail selling ceased. By this time the famous 'Colgate Dental Cream' had been on the market for about four years and many new brands of soaps scented with many different perfumes had been introduced. When the company was 100 years old, in 1906, it was marketing 160 different kinds and sizes of toilet soaps and 625 different perfumes. The perfumes were sold as such and also used in company products, which included shaving creams, shampoos, talcum powder and other goods.

"An important step in company history occurred in 1910 when all manufacturing was moved to the present site at Jersey City. The plant was easily identified even from afar, because there was installed on its roof a clock with a face nearly 38 feet in diameter. In 1923, Colgate purchased

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Modern new plant at Jeffersonville, Indiana, where in 1923 CPP purchased a building for manufacturing its soap products.



SODA ASH

By John R. Skeen
Market Research Department
Foster D. Snell, Inc.

SODA ash and its immediate products are essential to practically every industry. Soda ash is a basic requirement for making such commodities as soap, glass, aluminum, textiles and myriad industrial chemicals. Last year, nearly 4.7 million tons of soda ash were consumed, and the domestic demand exceeded this amount by almost one half million tons. As the new capacity recently provided amounts to this deficit, it is expected that all domestic needs as well as increased foreign commitments will be met before the end of the year.

Capacity for the production of soda ash has generally exceeded the demand since the domestic industry, based upon the Solvay ammonia-soda process, was established. The recent shortage is due to the failure to expand facilities after 1943 and the unprecedented rise in civilian demand that developed shortly after the war ended. The War Production Board sponsored a program of plant increase early in 1942. This provided for nearly 375,000 tons represented by six plants. Of this amount, 63,000 tons were of "natural" origin. Two years later, therefore, the total new capacity amounted to 30 percent of that existent in 1939. WPB did not find it necessary to place soda ash under allocation and the inflated post-war demand both at home and abroad developed unexpectedly.

Shortly after wartime obligations terminated, the alkali industry again expanded. Additional capacity of approximately one half million tons will be in operation by the end of this year and these facilities are believed to be sufficient for present de-

mands. The anticipated total of 5.3 million tons is far in excess of the capacity of any other nation. For instance, the capacity for production of the United Nations in 1939 was slightly in excess of 5.8 million tons; the Axis Nations had facilities to make nearly 2.4 million tons, while the neutral nations accounted for about 100 thousand tons.

A small but increasing amount of ash is contributed by the "natural" sources, brines of Searles and Owens Lakes on the U. S. West Coast. The dominant supply, however, is from the ammonia-soda process in which a saturated solution of salt is first treated with ammonia gas and then with carbon dioxide to form the crude sodium carbonate, suspended in a solution of ammonium chloride. By calcination, this is converted to light ash (Na_2CO_3), some of which is reprocessed to dense ash ($\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$), to sodium hydroxide, and to refined sodium bicarbonate. Some plants omit the several processing steps and the product is limited to the light soda ash of commerce. Of the 4.8 million tons of soda ash produced in 1947, about 3.7 million tons were sold as such.

As one of the historic products of soda ash is caustic soda, the demand upon the supply was relieved during the war by the expansion in facilities to turn out by-product caustic. This was achieved through the erection of federal and private plants for the production of electrolytic chlorine, simultaneously adding to the sodium hydroxide supply. The output of electrolytic caustic increased from 482,000

short tons in 1939 to 1.2 million tons five years later.

The alkali industry has not had a spectacular growth. It is generally considered that the business has increased at the rate of six percent per year. However, soda ash requirements last year rose 42 percent over 1940; caustic needs, about 70 percent. The demand of the paper industry for alkali products increased nearly 30 percent over pre-war years, and the recent and extraordinary demand for glass containers and aluminum has consumed much more soda ash than in 1939. Historically, the most important uses for soda ash were glass and soap, but with industrialization during the past 70 years, these demands increased and new ones were added. By 1925, there were seven major manufacturers of plate glass consuming 150 thousand tons of ash annually; 11 soap makers requiring an equal amount; six manufacturers of dichromates using more than 30 thousand tons; and nine producers of water glass taking another 30 thousand tons.

Phosphates and pyrophosphates contributed to the constantly increasing demand for soda ash in the early thirties. During the war years, the entire level of consumption increased. Thus, consumption by the greatly expanded aluminum industry rose from 40 thousand tons in 1939 to 450 thousand tons in 1943. Conversion to caustic soda increased 40 percent, and consumption in glass became 65 percent greater. Requirements for such chemicals as silicates, phosphates, and synthetic sodium nitrate were 40 percent more in war years than in 1939.

The United States was dependent almost entirely upon Europe for its soda ash until the first Solvay ammonia-soda process was placed in operation in Syracuse, N. Y. by what is now the Solvay Process Division of Allied Chemical and Dye Corp. Ernest Solvay in 1861 began development of this method and erected the first plant at Couillet, Belgium, two years later. Dr. Ludwig Mond introduced the process to England with a plant at Winnington operated by Brunner, Mond and Co. in 1874. Solvay production soon broke the price for soda ash, then made by the historic LeBlanc process,

from £13 per ton to about £4. The LeBlanc process slowly declined in importance and by 1916 had almost been completely displaced.

Other ammonia-soda installations were placed in operation in the 1890's. These included the Wyandotte Chemicals Corp. at Wyandotte, Michigan; Mathieson Alkali Works at Saltville, Virginia; and Solvay at Detroit. At the turn of the century, the Columbia Chemical Division of Pittsburgh Plate Glass built a plant at Barberton, Ohio, while Diamond Alkali began operations at Fairport, Ohio in 1910. After the first World War, Solvay and Mathieson erected new plants in the South while Wyandotte added another plant at the same site. These producers have continued uninterruptedly since. The latest is Southern Alkali Corp., owned jointly by American Cyanamid and Pittsburgh

Plate Glass Companies, with a plant at Corpus Christi, Texas.

Natural Production Begun

THE production of natural soda ash began shortly after the description of the alkaline properties of Owens Lake in 1875. Ten years later, Inyo Development Co. was in operation at Keeler. In 1912, the Natural Soda Products Co. erected a plant near Keeler. Inyo and Natural merged in 1924 and, ten years after, the properties were acquired by Wyandotte. The Pacific Alkali Co. was organized in 1929 to continue existing operations at Bartlett. Searles Lake is the second major source of natural soda. Production began in 1908 and the property was acquired by the American Potash and Chemical Corp. The West End Chemical Corp. has been producing natural soda since 1927. Recently, the

Columbia Chemical Division began at Bartlett, Calif., followed by Permanente Metals Corp. on Owens Lake. Westvaco, with its plant at Green River, Wyoming, is the first to produce natural soda ash outside California.

The effect of salts on the critical concentration for formation of micelles in solutions of long-chain electrolytes can be treated by considering the mass law as applied to the equilibrium between the unassociated long-chain ions, counter-ions, and the aggregate. Based on experimental observations, it is possible to calculate the ratio of long-chain ions and counter-ions which enter into the micelle. Similarly, an equation can be developed describing the variation in critical concentration with change in the length of the paraffin chain. M. L. Corrin, *J. Colloid Sci.* 3, 333-8 (1948).

SODA ASH: SUPPLY AND CONSUMPTION
supply units: 1000 short tons

	Supply 1 net	Production			Imports 2	Exports 2	Price 3 58¢, bags cents per lb.	Consumption in 4		Capacity			Producers-number		
		total 5	ammonia 6	natural 7				soap (% of supply)	cleansers (% of supply)	total 8	ammonia 9	natural 10	total 11	am- monia 12	natural 13
1931	2255	2275	2197	78.5	7.5	27.6	1.161	7.4	5.0				9	5	4
1933	2295	2317	2249	68.4	6.7	28.4	1.197	7.4	4.1		2800		9	5	4
1935	2465	2509	2414	95.2	0.0 ¹⁵	43.5	1.230	6.9	4.9				8	5	4
1937	2983	3037	2918	118.8	0.0	54.7	1.157	6.0	4.7				8	5	4
1939	2883 ¹⁴	2961	2826	132.9	0.0	80.0	1.050	6.9	4.8	3635	3500	135	8	5	4
1941	3741	3724	3607	117.6	0.0	83.4	1.050	4.5	1.9		4190		9	6	4
1942	3860	3925	3789	136.2	0.0 ¹⁵	64.5	1.050	4.3	2.1	4425	4260	165	9	6	4
1943	4426	4571	4408	163.5	8.4	152.9	1.050	3.5	1.9	4695	4530	165	9	6	4
1944	4648	4718	4538	179.6	9.4	79.3	1.050	3.5	2.1	4715	4530	185	9	6	4
1945	4505	4557	4375	181.8	18.3	70.4	1.050	3.3	2.4		4530		9	6	5
1946	4432	4493	4284	209.4	5.9	67.0	1.07	2.7	2.8	4754	4530	224	10	6	6
1947	4694	4800	4519	281.1	0.7	107.2	1.225	2.9	2.8	4866	4530	336	11	6	7
1948										5315	4935 ¹⁶	380	11	6	7
1Q	1169	1218	1148	69.5	—	49.4	1.300								
2Q	1093	1144	1066	78.6	—	51.5	1.300								

1 Total production plus net import-export; approximate and not official.

2 *Foreign Commerce and Navigation*; see also *Industry Report, Chemicals and Drugs* for late years; 1948 imports from Report No. FT110, Bureau of the Census; 1948 exports from Report No. FT410, *ibid.*

3 Bureau of Labor Statistics; c.l., f.o.b. works.

4 Consumption in soaps and cleansers expressed as per cent of "net supply"; original data from *Chemical and Metallurgical Engineering*; see also *Information Circular No. 7212*, June 1942, Bureau of Mines for years 1931-39.

5 1931-39: *Census of Manufactures*; 1941 and after: *Facts for Industry*, series M19A and supplements; 98-100% Na₂CO₃.

6 1931-37: "total" less "natural"; 1939 and after: *Facts for Industry*, loc. cit.

7 1931-37: "Natural soda and soda from other processes," *Census of Manufactures*; 1939 and after: "natural" only, *Facts for Industry*, loc. cit.; also reported by Bureau of Mines; electrolytic ash has been a small factor and production in 1941 was 18M tons; see also, Bureau of Mines, *Information Circular 7212*, June 1942.

8 All capacities are approximate only and the totals are correct within 100,000 tons; totals for 1926 and 1940 are about 2.2 and 4.1 million tons respectively.

9 Approximate only; values for 1926 and 1940 are about 2,150,000 and 4,000,000 tons respectively; Hou in his *Manufacture of Soda* gives 4,088,000 tons for 1940; Bureau of Mines *Magnesium Compounds* cites 4,500,000 tons for 1946; there are at least 6 more authoritative estimates available for recent years varying about 100,000 tons.

10 Approximate only; 1939 value may be low by 15,000 tons; 1948 value is highly uncertain.

11 Exclusive of duplication; in 1934, Wyandotte acquired Natural Soda Products Co. (natural); in 1945 Columbia Chemical Div. began natural production.

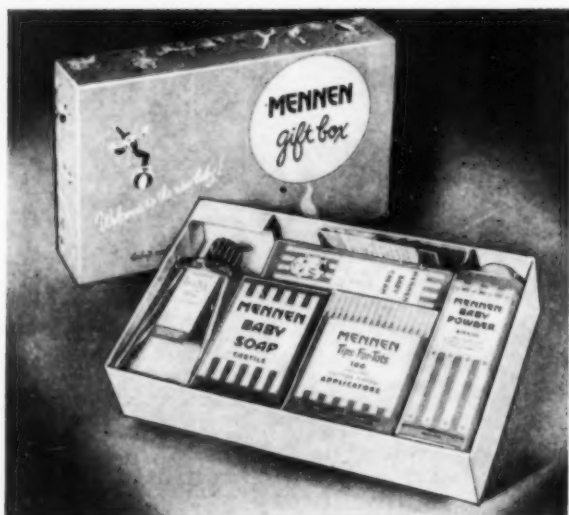
12 Solvay Process Co., 5 plants; Mathieson Alkali Works, 2 plants; Columbia Chemical Division, 2 plants; Wyandotte Chemical Corp., 2 plants; Diamond Alkali Co., 2 plants.

13 The "original" 5 are American Potash and Chemical Corp.; Natural Soda Products Co. (sub Wyandotte); West End Chemical Co.; Pacific Alkali Co.; the later 3 are Columbia Chemical Div. (Pittsburgh Plate); Westvaco Chlorine Products Co.; Permanente Metals Co. (Kaiser).

14 1939-; includes only "natural" and "ammonia," see (7).

15 1935-1942: imports very small varying from 870# in 1940 to 60 tons in 1941.

16 The often-quoted value is 5 million tons making the total nearly 5.4 million tons, believed to be unaccountably high.



Combining five of its 25 cent items, Mennen Co., Newark, N. J., recently introduced this gift box for babies. The box, which retails for \$1.25, includes a cake of castile soap.

Below: New counter display developed recently by F. W. Fitch Co., Des Moines, Ia., to introduce its creme shampoo in new tube package. Tube retails for 49 cents. The \$1 jar size, plus 10 cent sample tube, are offered for 89 cents.



NEW PRODUCTS E PACKAGES W DISPLAYS



Above: New McKay "Cleaner-Wax" for cars introduced recently by McKay Co., Pittsburgh, comes packaged in a six-ounce tube to retail for 98 cents. Product, in paste form, is being retailed through automobile supply store outlets.

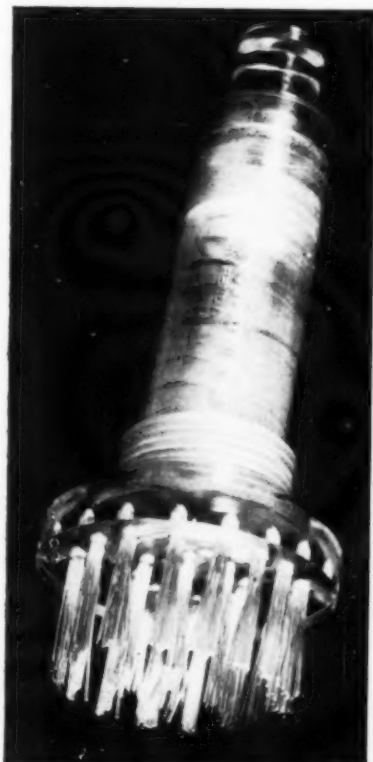
Right: New synthetic detergent introduced by Rare Chemicals, Inc., Harrison, N. J., is "Terjolate," for general household cleansing. Comprised of sodium sulfato sodium octodecanoate and N-diethanol N-alkylamide, it is supplied in pint bottles. It is designed especially for use by persons requiring a non-irritating and hypo-allergenic detergent.





Two established products now appearing in new packaging garb are "Black Flag" and "Fly Ded," both made by Boyle-Midway, Inc., New York. Now packed in low-pressure aerosol, lithographed containers, they feature push button valve type dispensers.

Below: New "Shampoo-Matic" brush type shampoo dispenser. Made of "Lucite" with "Nylon" bristles, the handle of the tube holds a stainless-steel spring type dispenser. Comes packed individually or with small bottle of shampoo. Product is made by Darb-Coiffure Co., New York.



Above: A new dentifrice, "Cyl-Dent" tooth paste made by Skin Tested Drug Products Inc., New York. An intensive radio advertising campaign for the product was initiated recently.

Right: Featured for Christmas giving is the new "Courtley" shaving bowl, made by Courtley, Ltd., New York. Bowl is plastic and comes in royal, red, black, green, saddle tan or white to retail for \$1.50.



Above: New sheet metal, diecut display made for Colgate-Palmolive-Peet Co., Jersey City, N.J., by Arvey Corp., Metal Division, Jersey City. Display is 36½ inches wide 17 inches deep and 39 inches high. It is of knocked down construction, spot-welded and requires no bolts or nuts.



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CAUSTIC POTASH
DISODIUM
PHOSPHATE
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GLYCERINE
METASILICATE
OXALIC ACID
POTASSIUM
CARBONATE
SAL AMMONIAC

SALT
SAL SODA
SILICATE OF SODA
SODA ASH
TRISODIUM
PHOSPHATE
CASTOR OIL
COCOANUT OIL
CORN OIL
COTTONSEED OIL
LARD OIL

NEATSFOOT OIL
OLEIC ACID-RED
OIL
OLIVE OIL
OLIVE OIL FOOTS
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New Research Heads Appointed by C-P-P



DR. E. E. DREGER



DR. ARTHUR L. FOX

Above: The two new research heads at Colgate-Palmolive-Peet Co., Jersey City, N. J. Dr. Dreger, with the company since 1925, and research director since 1941, has been elected vice-president in charge of research. He is a veteran of World War I and holds a number of patents on synthetic detergents. Dr. Fox, a newcomer to the Colgate organization, was formerly director of research for General Aniline and Film Corp., New York. He holds a similar position at C-P-P. He has done considerable research on synthetic detergents, emulsifying agents and surface active chemicals. He was with E. I. du Pont de Nemours & Co., Wilmington, Del., for 16 years, where he worked at Jackson Laboratories. While there he investigated the Reed Reaction for making detergents and participated in its development through the pilot plant stage preliminary to full scale production. Dr. Fox is a graduate of the University of Illinois and took his doctorate at Northwestern University in 1927.

Jergens Builds on Coast

Andrew Jergens Co., Cincinnati, recently awarded the contract for the construction of an addition to its warehouse building at 99 West Verdugo Boulevard, Burbank, Calif. The corrugated iron structure will add an area of 50 by 255 feet to the present building and will be two stories in height. Designed by Erwood P. Eiden, Glendale architect, the building will be erected by J. F. Cummins, Burbank contractor at a cost of \$55,000.

New P&G Soap Booklet

"The Story of Soap," a 32-page, 8½ x 6 inch booklet, lithographed in four colors, was recently published by Procter & Gamble Co., Cincinnati. The booklet, which was prepared under the supervision of William G. Werner, manager of the division of public relations of P & G, features full color line illustrations and actual plant photographs of various soap making operations. The

history of soap, its uses in medicine and industry, old American and up-to-date soap making, including the production of "Ivory," framed bar, milled, flaked and granulated soaps, laboratory work, synthetic detergents and a short history of the company are covered in the booklet.

A. P. Harris Dies

Arthur P. Harris, west coast representative for Manhattan Soap Co., and Scerliek Co., New York, died Sept. 12, at his home in Los Angeles after a prolonged illness. He was 66 years old and had represented the two companies in the west for 30 years. His widow and two daughters survive.

Sales Club Hears Luckman

Charles Luckman, president of Lever Brothers Co., Cambridge, Mass., spoke at a testimonial luncheon for Alvin Dodd, honorary president of the American Management Assn., Sept. 14. The luncheon, sponsored by the Sales Executives Club of New York,

was held at the Hotel Roosevelt. Mr. Luckman made a plea for national preparedness and stressed the need for the study and understanding of human relationships in business.

Thorpe Joins Fairbanks

Carl Thorpe, formerly of Lever Brothers Co., Cambridge, Mass., recently joined Fairbanks Soap Co., Toronto, Canada, as marketing manager.

Heyden to Acquire Rumford

The acquisition of Rumford Chemical Works, Providence, R.I., by Heyden Chemical Corp., New York, was announced recently. Under the terms of the agreement, Heyden, under certain conditions, will acquire all of the assets of Rumford in consideration of the assumption of all of Rumford's liabilities and the issuance to Rumford of 99,438 shares of Heyden's common stock.

Douglas Heads Bourjois

Paul H. Douglas, formerly executive vice-president and general manager, was recently elected president of Bourjois, Inc. In addition to his duties with Bourjois, he is active in the affairs of the Toilet Goods Association, of which group he was president during 1947-48.

Former Williams Head Dies

Henry K. W. Welch, 82, from 1935 until his retirement in 1937, president of J. B. Williams Co., Glastonbury, Conn., died at his home in Hartford, Sept. 24. He had been associated with the company in various executive capacities for nearly 40 years. Mr. Welch joined the firm as secretary in 1899, served as vice-president and treasurer for 15 years and, in 1935, succeeded Samuel H. Williams as president. A native of Hartford, where he received his early schooling, he spent a number of years in the insurance business before going with the Williams company. He held directorships in a number of insurance and industrial concerns. Mr. Welch leaves his wife, Mrs. Mary Hopkins Clark, four daughters, a son and a sister.

Fat and Oil Use Reported Down in 2nd Quarter

A DECLINE in the reported consumption of primary animal and vegetable fats and oils for soap during the second quarter of 1948 was indicated recently by the Bureau of the Census of the Department of Commerce, Washington, D. C. During the second three months of the year, 472,654,000 pounds of fats and oils were reported consumed in soap, as against 570,263,000 pounds in the first quarter of 1948 and 480,999,000 pounds in the second quarter of 1947. Total consumption for the first six months of this year, however, was slightly higher than during the first half of 1947, there being 1,042,917,000 pounds consumed this year as against 1,007,448,000 pounds for the comparable period a year ago.

Inedible tallow, grease and coconut oil continued as the leading soap fats. Reported consumption of inedible tallow dropped as compared with the first quarter, as did grease. Coconut oil use declined rather sharply, going from 146,317,000

pounds in the first quarter to 95,358,000 pounds in the second three months of 1948. Inedible tallow consumption during the second quarter of this year was reported at 243,306,000 pounds, as compared with 270,927,000 pounds in the first quarter. Grease consumption in the second quarter, also showing a decline, went from 130,396,000 pounds for the first quarter to 121,776,000 for the second quarter.

Babassu oil (5,989,000 pounds) and fish oil (5,799,000 pounds) were fourth and fifth from the standpoint of consumption for the quarter, followed by No. 1 castor oil (3,852,000 pounds), lard (2,195,000 pounds) and "other vegetable" (1,230,000 pounds) which rounded out the over a million pound class for the quarter. In the previous quarter, apart from the "big three" soap making fats and oils, fish oil with 14,803,000 pounds and No. 1 castor oil, 3,297,000 pounds, were the only two oils in the over a million pound consumption category for that period.

SDMA Acts on Coconut Oil Shortage

THE board of directors of the Soap and Detergent Manufacturers Association met in Cleveland, September 24th, and adopted a number of resolutions affecting future association policy. Of perhaps greatest importance was their action on the supply situation in coconut oil. The longshoreman's strike on the Pacific Coast has created an acute shortage of Philippine coconut oil, leading to consideration by many users of the idea of importing Ceylon coconut oil direct. With WFO-63 still in effect, however, concerns that had not imported coconut oil prior to February 14, 1947, were found to be at a decided disadvantage. Under WFO-63 only the larger soapers qualified to secure such licenses. To alter this situation, the directors of the S.D.M.A. adopted a resolution petitioning the U.S.D.A. to suspend these discriminatory provisions of WFO-63 during the emergency. (The Department acted

promptly on this suggestion, liberalized its policies on import licenses and has made it possible for direct users of coconut oil, including all small soap companies, to import a substantial quantity of Ceylon oil. Ed. note)

To Aid Small Business Inquiry

The SDMA Board also voted to "accept the invitation of the House Small Business Committee to cooperate with Congress in its laudable endeavor to aid small business in the soap and detergent manufacturing industry." The cooperation of the Soap and Detergent Manufacturers Association had previously been requested in presenting factual information pertinent to the Congressional inquiry which is currently being made into "monopolistic organization and practices within industry."

Again on a series of topics connected with preservation for the American soap maker of the maximum

quantity of fatty raw materials, the association directors adopted the following three resolutions:

Resolved, That the appropriate agencies of the United States Government concerned with exportation of domestic soapmaking fats to foreign countries that are not participants in the European Recovery Program, be requested to urge the recipient countries to accept delivery thereof in the form of finished soaps, detergents or cleansers produced by American labor in this country.

Resolved, That the United States Government be requested to urge foreign nations to suspend their tariffs or duties on the importation of American-made soaps, detergents or cleansers imported from our country under allocations made by the International Emergency Food Committee.

Resolved, That in order to conserve the use of edible fats and oils for edible purposes, the Soap and Detergent Manufacturers Association urge the Federal Specification Board to amend its purchasing specifications for potash soaps so as to make it optional with the manufacturer thereof to deliver soaps with or without glycerol content.

Clarify SDMA Future

In setting the further course of the association more definitely, the board members went on record as opposing any program which would involve transferring "its name, its charter, its membership or its assets to any other association in the industry." In adopting this resolution they affirmed that "An association of soap and detergent manufacturers that can operate independently of the controls the largest companies heretofore have imposed over cooperative activity within the industry through special devices, is not only desirable, but essential if the hundreds of small and medium-size companies in our industry are to have a voice at Washington in shaping policies that vitally affect their business operations and their financial well-being."

The association will meet in New York City, January 25th. Herbert Kranich of the Kranich Soap Co., Brooklyn, SDMA president, presided at the Cleveland meeting.

C-P-P Man Dies in Crash

John A. O'Brien, Chicago industrial division manager for Colgate-Palmolive-Peet Co., Jersey City, was killed in a Northwest Airlines plane crash near Fountain City, Wis., Aug. 29. He was 44 years old and had been with the company for 21 years. The crash also took the lives of 38 other persons on the plane. Mr. O'Brien joined the firm 21 years ago as a clerk in the industrial home office, which was then located in Chicago. He was transferred to Jersey City with the division in 1934 and continued in the home office until he was assigned a sales territory shortly thereafter. Later, he was appointed sales superintendent, eventually becoming divisional manager in the Chicago territory. Mr. O'Brien is survived by his wife, Ethel, and a daughter, June, who is a student at Purdue University. Mr. O'Brien was on his way to Duluth, Minn., on the regular Chicago Minneapolis flight, when the crash occurred.

New Line of Cleaners

Gerity-Michigan Corp., Adrian, Mich., has announced a new line of cleaning products which includes a chrome polish, which may also be used on nickel, brass and copper; a silver polish; a liquid wax for porcelain and enamel surfaces; a liquid wax polish for windows, mirrors, stemware and crystal; a furniture polish; and a foam-type cleaner for rugs, upholstery and drapes.

Detrex Widens Field

A complete line of cleaning chemicals and equipment for both production and maintenance cleaning are now being offered to the automotive and aviation service fields by Detrex Corp., Detroit, the company announced recently. Distribution to the service field will be through a selected group of jobber representatives in various market areas. Products to be marketed immediately include: Solvent evaporator degreasers, parts washers, cleaning tanks, non-flammable degreasing solvents, alkali cleaning compounds, detergents, emulsion cleaners, paint strippers, shampoo-type cleaners, etc.

Armour Makes Changes

D. E. Shea, formerly sales promotion manager of Armour Soap Works, Chicago, was recently named



sales manager of the household soap division of the company, which includes "Chiffon" flakes and "Perk" granulated soap. B. B. Freitag, who was formerly sales manager of the household soap division, has been made sales manager of the toiletries divisions, which includes newly introduced "Dial," deodorant soap.

A new and intensified sales campaign for "Perk" was inaugurated in the South recently by Armour. "Perk" was originally brought out by the company in 1939, but because of limited production capacity and the war, its promotion was never pushed. Originally, it was tested in a number of midwestern cities. Advertising on behalf of "Perk" features a new ingredient, "Armocel," which, it is claimed, washes clothes whiter. The current campaign for "Perk" includes a double-your-money back guarantee and a 15 cent coupon deal.

McElroy P & G President

The election of Neil H. McElroy to the presidency of Procter & Gamble Co., Cincinnati, to succeed R. R. Deupree, who becomes chairman of the board, was announced Oct. 13. Mr. McElroy had been vice-president and general manager. Mr. Deupree, president since 1930, fills a vacancy left open since the death of William Cooper Procter in 1934.

Everett Joins Lever

Walter Everett, formerly city editor of the *Evening Bulletin*, Providence, R. I., newspaper, recently joined the public relations staff of Lever Brothers Co., Cambridge, Mass.

John H. Bower Retires

John H. Bower, an authority on standards and specifications for washing, cleaning and polishing materials, retired recently as assistant chief of the Surface Chemistry Section of the National Bureau of Standards, U. S. Department of Commerce, Washington, D. C. He had been with the Bureau since 1914, was assistant chief of the Detergent Section for many years and in July, 1947, became assistant chief of the Surface Chemistry Section. While at the Bureau, he engaged in extensive research and analyses of waxes, polishes, soaps and other detergents. A graduate of Lehigh University, he worked in private industry for eight years before entering Government service. He was vice-chairman of the Committee on Detergents of the Federal Specifications Board for more than 25 years and has served on the Technical Committee on Chemical Products, Federal Specifications Board, since 1932.

Calgon Appointments

J. C. Weithaus, formerly manager of Calgon domestic department, was recently elected vice-president in charge of domestic sales for Calgon, Inc., Pittsburgh. He has been identified with the marketing of "Calgon," a phosphate glass product, since 1936.

Miss Dorothy Darragh, previously laundry counsellor for Danforth Co., Pittsburgh, has been appointed director of home economics for Calgon. She will devote her activities to the promotion of "Calgon" for use in connection with laundering, hand dishwashing, bathing and cleaning.

P&G Names Ittman

William M. Ittman was recently named director of media in the advertising department of Procter & Gamble Co., Cincinnati. He has been with the firm since 1941.

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detergent silicate

DRYMET is anhydrous sodium metasilicate. On the basis of both Na_2O (alkalinity) and SiO_2 (silicate) it is more economical to use than other types of hydrated or anhydrous detergent silicates.

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Magnus DCAT Chairman

Robert B. Magnus, vice-president of Magnus, Mabee & Reynard, Inc., New York, vice-chairman of the



ROBERT B. MAGNUS

Drug, Chemical and Allied Trades Section of the New York Board of Trade, was elected chairman at the group's recent annual meeting at Shawnee-on-Delaware, Pa. He succeeds Fred J. Stock of Charles Pfizer & Co., New York, as chairman.

Other officers and the executive committee include: vice-chairman, Lloyd I. Volckening, Ivers-Lee Co.; treasurer, Hugh S. Crosson, McKesson and Robbins, Inc.; counsel, Carl M. Anderson, Merck & Co., who was reelected; secretary, Helen L. Booth, also reappointed; executive committee: Stanley I. Clark, Sterling Drug, Inc.; Paul H. Douglas, Bourjois, Inc.; James G. Flanagan, S. B. Penick & Co.; Dr. Russel J. Fosbinder, Maltbie Chemical Co.; Harold C. Green, L. Sonneborn Sons, Inc.; Robert L. Hutchins, Commercial Solvents Corp.; Claude A. Hanford, Pharmaco, Inc.; Robert A. Hardt, Hoffman, La-Roche, Inc.; Charles M. Macauley, Prophy-lactic Brush Co.; John P. Remensnyder, Heyden Chemical Corp.; Clark L. Rodgers, Owens-Illinois Glass Co.; E. L. Shattuck, Abbott Laboratories; Fred G. Singer, E. I. du Pont de Nemours & Co.; Gerald L. Smith, American Home Products Corp.; William H. Sheffield, Jr., Innis, Speiden & Co.; Charles P. Walker, Jr., Citro Chemical Co.

Mrs. French Joins Powers

Miriam Gibson French, one-time director of publicity for Shulton, Inc., New York, was recently appointed to handle promotion and publicity for a new line of cosmetics to be brought out by John Robert Powers Products Co., New York. The new firm is head by John Robert Powers, noted authority on modelling.

M. Haugen, C-P-P, Dies

Martin Haugen, 54, connected with the Kay Daumit "Lustre Creme" shampoo division of Colgate-Palmolive-Peet Co., Jersey City, N. J., died suddenly of a heart attack while attending a convention in Asbury Park, N. J., Sept. 14. Prior to becoming associated with the "Lustre Creme," Mr. Haugen had been with the company's industrial division for many years, much of which was spent in Cleveland, where he was associated with the late John A. O'Brien, C-P-P Chicago industrial manager, who was killed in a plane crash Aug. 29.

New Capitol Soap Line

Capitol Soap Corp., Paterson, N. J., recently announced the formation of a new organization to manufacture a complete line of sweeping compounds, soaps, disinfectants and specialties under the trade name, "Capco Products."

W. S. Gray Dies

William S. Gray, 92, chairman of the board of W. S. Gray & Co., New York, chemical manufacturers, died recently in Greenwich, Conn., at the home of his son, William Steele Gray, Jr.

Mathieson Research Head

Dr. Carl F. Prutton, formerly head of the department of chemistry and chemical engineering at Case



CARL F. PRUTTON

School of Applied Science, Cleveland, recently joined Mathieson Chemical Corp., New York, as director of research. He had been a faculty member at Case from the time of his graduation in 1920 until he joined Mathieson. In addition, he was a consultant to Lubrizol Corp., from 1928 until his recent appointment and served in a similar capacity for Dow Chemical Co. from 1928 until 1941. From 1942 to 1944 he was connected with the Office of Rubber Director.

Fourth Quarter Fat Allocations 164 Million Lbs.

FOURTH quarter fats and oils export allocations of 164,800,000 pounds were announced Sept. 17 by the U. S. Department of Agriculture. The fourth quarter allocations compare with 90,400,000 pounds for the previous quarter and are far below the huge figure of 452,000,000 pounds for the fourth quarter of a year ago.

The allocations of fats, oils and oilseeds for the Oct.-Dec. quarter this year include 46.4 million pounds (oil equivalent) allocated to export claimants in exchange for other fats and oils required by the United States. Eight million pounds of the fourth quarter allocations will be in the form of soap, while 77 million pounds of lard will represent the major share. Inedible oils and shortening, the next largest item, will total 43.2 million pounds. The figure for "other indus-

trial fats and oils" has been set at 27 million pounds. Margarine and linseed oil, the final two items on the list, were listed as 2.1 million pounds and 7.4 million pounds, respectively.

Soap to be exported under the allocations has been earmarked in the following quantities for these countries: American Republics, 2,215,000 pounds; Philippines, 2,170,000 pounds; Netherlands Colonies, 500,000 pounds; British Colonies, 160,000 pounds; Belgian Congo, 130,000 pounds; Tangier, 125,000 pounds and Afghanistan, 176,000 pounds.

Fats and oils for export allocations will be acquired through three sources, Production and Marketing Administration procurement, Army procurement and commercial procurement. The last named category will produce 141,300,000 pounds.



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Drew V.P. Dies

E. Lionel Parrott, vice-president of E. F. Drew & Co., New York, died in a drowning accident Sept. 18.

SOCMA Hears Benz

Oliver Benz of the development department of E. I. du Pont de Nemours & Co., Wilmington, spoke on "Training Salesmen; Why and How It Is Done," at the Oct. 13, luncheon meeting of the Synthetic Organic Chemical Manufacturers' Association at the Commodore Hotel, New York.

Fritzsche Honors Two

A luncheon honoring Fred L. Hilbert on his 25th year with Fritzsche Brothers, Inc., New York, was held at the New York Athletic Club, Sept. 14. Mr. Hilbert, who is in charge of replacement research, was inducted into the company's Quarter of a Century Club, the fifth employee this year to be so honored. He was presented with a bond by F. H. Leonhardt, president, on behalf of the board of directors, and from his fellow employees Mr. Hilbert received a gold wristwatch.

Frank Mayer of the Fritzsche factory in Clifton, N. J., was retired by the firm Sept. 30 upon completion of 27 years of continuous service with the company. A party in his honor, attended by all Clifton factory employees, was given by Fritzsche Bros.

Max Kaesche, Jr., Dies

Max B. Kaesche, Jr., 52, sales manager of Sandoz Chemical Co., New York, producers of textile oils and specialties, died Oct. 2, of a heart attack at his home in New York. He was a well known golfer, having won the championship of the Ridgewood (N. J.) Country Club for the eleventh time, a week before his death. He was also president of the Metropolitan Golf Association in 1940.

B. M. Spencer's Wife Dies

Mrs. Ruth Cotton Spencer, wife of Benjamin M. Spencer, head of B. M. Spencer & Co., died Sept. 26. A funeral service was held at St. Bartholomew's Church, New York, Sept. 29.

Diversey Names Saylor

Diversey Corp., Chicago, announced recently the appointment of Lynn A. Saylor as advertising man-



LYNN A. SAYLOR

ager. He comes to the new post following twelve years as divisional advertising and sales promotional manager for Hotpoint, Inc. Previously he had been associated with Certain-Teed Products Corp., Ingersol Steel Div. of Borg-Warner Corp. and other concerns. Plans are being developed, Mr. Saylor stated, for an intensified sales campaign during 1949 for Diversey's varied products, which include detergents for specific industries, such as bakeries, beverage and dairy, also insecticides and other sanitation chemicals, and cleaning compounds for metal working industries.

MacDonald Moves to Coast

George R. MacDonald, Pacific Coast representative of Ungerer & Co., New York, has just moved into his new California residence, "The Rancho Verdigo Apartments" in Glendale. He was formerly of Boston and is reported to be making new friends for Ungerer in the west.

New Morgan Son

Ralph Morgan, Philadelphia representative for Givaudan-Delawanna, Inc., New York, is the father of a son, Robert T. Morgan, born early last month in Philadelphia. The new boy is doing right well, and according to latest reports, so is the father. The latter is a nephew of E. G. Thomssen, Winona, Minn. chemical consultant and Soap contributor.

P & G Radio Shifts

The creation of three separate groups responsible for the supervision of its radio and television programs was announced recently by Procter & Gamble Co., Cincinnati. William M. Ramsey, director of radio, will continue in charge of P & G's daytime radio programs and will also represent the company on broad matters of policy affecting both day and night programs. Gail Smith has been placed in charge of night radio shows. His previous duties covering daytime programs have been taken over by W. F. Craig. Gilbert A. Ralson is now director of television.

Chicago Chemical Show

Chemical market development and a talk on synthetic organic chemicals by R. B. Semple of Monsanto Chemical Co., St. Louis, two of the program highlights, were discussed during the 1948 National Chemical Exposition and National Industrial Chemical Conference, held at the Chicago Coliseum, Oct. 12-16. The session on chemical market development, held Oct. 12, heard talks by H. M. Corley of Armour & Co., on "Some Basic Aspects of Commercial Development"; D. K. Ballman, Dow Chemical Co., who discussed "A Case History of Commercial Chemical Development" and R. M. Prather of Standard Oil Co., speaking on "Use of Chemical Market Data." The meeting was held under the sponsorship of the Chicago section of the American Chemical Society.

Chicago Assn. Meets

Otto Eisenschiml, chairman of the board of Scientific Oil Compounding Co., Chicago, and one of the foremost authorities in the United States on Abraham Lincoln, was the guest speaker at the first fall luncheon meeting of the Chicago Drug and Chemical Association, held at the Drake Hotel, Chicago, Sept. 30.

Shell Shifts Offices

Shell Chemical Co., recently opened administrative offices at 4 W. 58th St., New York. The company's offices were previously located in San Francisco.

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**RHODINOL
RHODINOL EXTRA
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BRANCH OFFICES and *STOCKS: Atlanta, Georgia, *Boston, Massachusetts, *Chicago, Illinois, Cincinnati, Ohio, Cleveland, Ohio, Dallas, Texas, Detroit, Michigan, *Los Angeles, California, Philadelphia, Pennsylvania, San Francisco, California, *St. Louis, Missouri, *Toronto, Canada and *Mexico, D. F. FACTORY: Clifton, N. J.

"Big Three" Soap Firms Named in F.T.C. Case

COMPLAINTS against the "big three" soap companies (Procter & Gamble Co. and its subsidiary, Procter & Gamble Distributing Co., Cincinnati; Colgate-Palmolive-Peet Co., Jersey City, N. J., and Lever Brothers Co., Cambridge, Mass.) were filed early this month by the Federal Trade Commission, Washington, D. C., for alleged violation of the Clayton Anti-Trust Act. Specifically, the companies are charged with unlawful price discrimination in the matter of granting "discriminatory rebates" to certain purchasers when making changes in current selling prices. According to the F.T.C. position, the soap companies granted the rebates to certain customers on products purchased but not sold at retail before the effective date of the new wholesale price.

In addition, the companies are charged with selling identical products to smaller businesses for more than the prices paid by larger customers.

The three soap companies, against whom identical complaints had been filed, were further charged with refusing to grant rebates to other purchasers who compete with favored customers in the retailing of soap products.

The charges were denied by Procter & Gamble through Thomas J. Wood, vice-president, who pointed out that the F.T.C. action covers a "price protection policy" aimed at insuring against a decline in wholesale stocks only. He recalled an earlier ruling of the F.T.C. on the procedure which was decided in favor of the policy, Mr. Wood stated.

A statement of the New York Food Merchants Association on the proceedings recommended that the solution to the question lies in the direction of basing rebates arising from price cuts on invoices and not on inventories. The association recommended basing rebates on invoices rather than inventories because of the physical impossibility of checking all inventories. The rebates should be made on sales made 15 days prior to the date of the manufacturer's price

reduction, he suggested, with retailers buying from wholesalers receiving their rebates in the same manner.

It was pointed out by the Food Merchants Association that the position of retail grocers is particularly bad at this time because many overbought soap heavily on the promise that premium coupons would be issued to stimulate sales. Instead manufacturers were alleged to have cut prices before coupons were issued.

Soaper Draws Fine

Samuel Halaby, head of Samuel Halaby Co., Rochester, N. Y., recently was fined \$3,000 on each of five counts charging violation of the War Food Order covering fats and oils during the period Jan. 1, 1944 to Apr. 1946. Mr. Halaby's firm was also indicted on the charge, but three counts were dismissed on motion of the U. S. attorney prosecuting the case. On two other counts against the firm, the judge ordered payment of a total of \$10,000, to be suspended on payment of the fines exacted against the manufacturer as an individual.

Federline Moves Office

Andrew P. Federline, executive secretary of the Soap and Detergent Manufacturers Association, recently moved to new quarters in the Dupont Circle Building, 1346 Connecticut Ave., Washington 6, D. C. The new telephone number is Adams 4989.

Mr. Federline also announced that he now has Robert F. Wilson, for many years with the Grocery Manufacturers Association and more recently an official in the machinery division of the War Production Board, associated with him. Mr. Wilson is a lawyer and at one time was an executive of Bloch Drug Co.

N. Y. Soap Wins in Suit

John Cerni, Jr., of New York Soap Co., New York, received an award amounting to \$1,052 in a recent decision handed down by the New York State Supreme Court. Mr. Cerni was the defendant in two actions brought by Lawrence Sideman, head of a New York beauty products firm,

who also sued Colloid Beauty Products Co., the latter firm in turn suing New York Soap Co. A counter claim was entered by New York Soap Co. for the materials it had sold to Colloid. The suits all center around a shampoo product, the materials for which were bought from New York Soap Co. by Colloid Beauty Products Co., which firm in turn made the shampoo and sold it to the firm run by Lawrence Sideman. The product sold well initially but later sales declined after certain defects had become apparent. The Sideman firm sued Colloid Beauty Products for \$23,000 for what was alleged to be supplying a faulty product. Colloid then sued New York Soap for \$63,000.

The jury in the case found in favor of Mr. Sideman for \$750, while New York Soap received a judgment of \$1,052 in its countersuit against Colloid Beauty Products.

AOCS Meets Nov. 15-17

C. P. Long of Procter & Gamble, president of the American Oil Chemists' Society, will preside at the group's 22nd annual fall meeting, to be held at the Hotel Pennsylvania, New York, Nov. 15-17. Simultaneous sessions will be held for the first time at this meeting because of the number of papers scheduled to be presented. Foster D. Snell of Foster D. Snell, Inc., New York, is general chairman and H. W. Vahlteich of Best Foods, Inc., New York is program chairman. Soap papers are scheduled for presentation on Monday, Nov. 15, first day of the meeting.

Dr. N. C. Jones Dies

Dr. Newton C. Jones, manager of the Niagara Falls plant of the electrochemicals department of E. I. du Pont de Nemours & Co., Wilmington, Del., died Sept. 13 of a heart attack. He had been manager of the plant since January of this year. Succeeding Dr. Jones as manager of the Niagara Falls plant is Ross Hare.

Riches in Europe

George E. Riches, president of Riches-Nelson, Inc., New York, distributors and sales agents of chemicals and allied products, is now in Europe on an extensive business trip.



REG. U. S. PAT. OFF.

THE NAME TO WATCH IN CHEMICALS

Even in Grease and Fats D-40 Provides High Suds— Good Detergency

The lasting power of D-40's generous foam offers low cost, high efficiency performance by giving maximum grease suspension at minimum concentrations. Tests show that even under adverse conditions in the presence of large amounts of grease and fatty oils, D-40 "stands up." Its exceptional surface active properties make it extremely economical whether used as a cleaner by itself or blended with other materials.

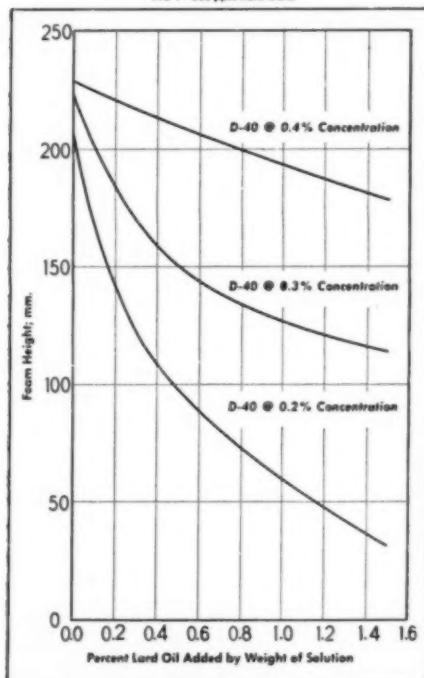
Since D-40 is neutral, it is not harmful to delicate fabrics, it gives quicker "break" and easier rinsing.

For economy and outstanding performance, whether for compounding or use by itself, D-40 is superior. Get all the facts today from your nearest Oronite office.

TESTS PROVE D-40 PERFORMANCE

The Ross Miles Foam height test charted below shows the excellent sudsing ability of D-40 in the presence of high concentrations of grease in 300 ppm of hard water.

ROSS-MILES FOAM HEIGHT TEST
110°F—300 ppm hard water



D-40 is compatible with alkalis, acids, soaps, and inorganic salts. Good foaming ability is shown with concentrations of D-40 as low as 0.2 percent.

This outstanding product can help you get better results in all cleaning and washing operations. Ask for D-40.

ORONITE CHEMICAL COMPANY

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STANDARD OIL BLDG., LOS ANGELES 15, CALIFORNIA

30 ROCKEFELLER PLAZA, NEW YORK 20, NEW YORK
600 S. MICHIGAN AVENUE, CHICAGO 5, ILLINOIS

Treas. Floor Wax Bids

Among the bidders on 8,960 pounds of floor wax in a recent opening for miscellaneous supplies by the Treasury Department, Bureau of Federal Supply, Washington, D. C., were: R. L. Carlisle Chemical & Manufacturing Co., Brooklyn, 38 cents; S. C. Johnson & Son, Racine, Wis., 30 cents in five-pound cans; Trio Chemical Works, Brooklyn, 13 cents; G. & G. Paint Co., Washington, D. C., \$1.02, total \$2,284.20; Penetone Co., Tenafly, N. J., 18.9 cents; R. M. Hollingshead Corp., Camden, N. J., 19 cents; Wilbert Products Co., New York, 15 cents; Oil Specialties & Refining Co., Brooklyn, 15 cents; B. Preiser Co., Charleston, W. Va., 21.5 cents; Buckingham Wax Co., Long Island City, N. Y., 12.7 cents; Beacon Co., Boston, 32.5 cents; Twin City Shellac Co., Brooklyn, 18 cents; S. S. Stafford, New York, \$1.19. \$2,665.60 total, 2,240 cans only; Windsor Wax Co., Hoboken, N. J., 15.8 cents; Lasting Products Co., Baltimore, 18 cents; International Metal Polish Co., Indianapolis, 25 cents; Ches-White Co., Baltimore, 19 cents; Davies-Young Soap Co., Dayton, 19 cents.

Naphthalene Bids

Among the bids received on 800 pounds of naphthalene in a recent opening for miscellaneous supplies by the Bureau of Federal Supply, Treasury Department, Washington, D. C., were those of: Reilly Tar & Chemical Corp., Indianapolis, 14.38 cents; Reliable Chemical Co., Passaic, N. J., 14.5 cents; Elkay Products Co., New York, 14.94 cents; Octagon Process, Brooklyn, 17 cents; Lewis Co., New York, 15.75 cents; Koppers Co., Tar Products Div., Wash., D.C., 14.515 cents.

Toilet Soap Bids

In a recent opening for miscellaneous supplies by the Treasury Department, Bureau of Federal Supply, Washington, D. C., the following bids were received on 1,152 pounds of toilet soap: Iowa Soap Co., Burlington,

Ia., 24.5 cents, 500 one-ounce unwrapped per case; Globe Grocery Co., South Boston, 41 cents, 1,000 unwrapped to box; Lightfoot Schultz Co., New York, 38 cents; Industrial Soap Co., St. Louis, 48 cents, 100 one-ounce cakes to a package; Lanair Chemical Corp., Chicago, 23.56 cents.

AQMC Airplane Spray Bids

The following bids were received on 53,000 gallons of 20 percent DDT insecticide airplane spray in a recent opening for miscellaneous supplies by the Army Quartermaster Corps, New York: Armas Co., Austin, Tex., \$1.055; Bri-Test, Inc., New York \$1.04; California Chemical Co., North Sacramento, \$1.99; California Spray-Chemical Corp., Richmond, Calif., \$1.175; Dorsett-Jones, Inc., Baltimore, \$0.9124 (low bid); Double B. Products Co., Inc., Harford, \$1.60; Douglas Chemical & Supply Co., Kansas City, \$1.27; General Chemical Division, Allied Chemical & Dye Corp., New York, \$1.013; Fumol Corp., Long Island City, N. Y., \$1.35; Gray Industrial Laboratories, New York, \$1.17; R. M. Hollingshead Corp., Camden, N. J., \$1.09; McCormick & Co., Baltimore, \$1.273; Michigan Chemical Corp., St. Louis, Mich., 92 cents; Pacific Chemical Co., Los Angeles, \$1.095; John Powell International, Inc., New York, \$1; R. J. Prentiss & Co., New York, 97 15/16 cents; Private Brands, Inc., Clifton, N. J., \$1.025; Stanco, Inc., New York, \$1.105; Stepan Chemical Co., Chicago, \$1.19.

Treas. Disinfectant Bids

In a recent opening for miscellaneous supplies by the Federal Bureau of Supplies, Treasury Department, Washington, D. C., the following bids were received on 224 gallons of disinfectant: Coopers Creek Chemical Corp., West Conshohocken, Pa., \$1.04; A. M. R. Chemical Co., Brooklyn, \$1; Crystal Soap & Chemical Co., Philadelphia, \$1.30; E. B. Snyder Laboratories, Philadelphia, 76 cents;

Dorsett-Jones, Inc., Baltimore, \$1.302; Chemical Manufacturing & Distributing Co., Easton, Pa., 82 cents; Pras Laboratories, St. Louis, \$1.59; Koppers Co., Tar Products Division, Washington, D. C., \$1.20; R. M. Hollingshead Corp., Camden, N. J., \$1.45; Ches-White Co., Baltimore, 83 cents; Janitors Supply House, Baltimore, \$1.04; James Huggins & Son, Malden, Mass., 68 cents; Baird & McGuire, Inc. Holbrook, Mass., \$1.01.

P. O. Chip Soap Bids

The following bids were received on 1,500 pounds of chip soap in a recent opening for miscellaneous supplies by the Post Office Department for Chicago: Peck's Products Co., St. Louis, 29 cents a pound; Unity Sanitary Supply Co., New York, 27 cents; Colgate-Palmolive-Peet Co., Jersey City, N. J., 12.937 cents; National Milling & Chemical Co., Philadelphia, 19 cents; Chicago Sanitary Products Co., Chicago, 17 cents; Stahl Soap Co., Glendale, N. Y., 13.95 cents; Armour & Co., Chicago, 17.5 cents; General Soap Co., Chicago, 20 cents; Marman Soap Co., Milwaukee, 13 cents; Merchants Chemical Co., Cincinnati, 16.5 cents.

Treas. Disinfectant Bids

In a recent opening for miscellaneous supplies by the Treasury Department, Bureau of Federal Supply, Washington, D. C., the following bids were received on 1,100 gallons of liquid disinfectant: E. B. Snyder Laboratories, Philadelphia, 75 cents; Penetone Co., Tenafly, N. J., \$1.275, returnable drums; R. M. Hollingshead Corp., Camden, N. J., 54 cents; Pras Laboratories, St. Louis, \$1.10; Koppers Co., Tar Products Division, Washington, D. C., 93 cents; James Huggins & Son, Malden, Mass., 63 cents; New Jersey Chemical Co., Bayonne, \$1.19; Chemical Manufacturing & Distributing Co., Easton, Pa., 67 cents; Allen Burns Co., Buffalo, \$1; Fine Organics, New York, 39 cents; Dorsett-Jones, Inc., Baltimore, \$1.063; Uncle Sam Chemical Co., New York, 67 cents; B. Preiser Co., Charleston, W. Va., 94 cents; A. M. R. Chemical Co., Brooklyn, 73 cents; Coopers Creek Chemical Corp., West Conshohocken, Pa., 73 cents.

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by
GEORGE LUEDERS & CO.

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CARDAMOM
OPOPONAX
CELERY
STYRAX

RESINS
BALSAM PERU
BALSAM TOLU
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TRADE MARKS

THE following trade-marks were published in the September issues of the *Official Gazette* of the United States Patent office in compliance with Section 6 of the Act of February 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

PS PRIVATE SEAL—This in upper case, extra bold, oversize letters for the "P" and "S," which have a cross between them, and upper case bold letters for the words "Private Seal" for dental cream. Filed June 3, 1946 by Associated Merchandising Corp., New York. Claims use since Apr. 5, 1939.

Mark consisting of a single capital letter "M," symmetrical in design and suggestive of a ram's horns, superimposed on a circle for antiseptic. Filed July 19, 1926 by Maltine Co., New York. Claims use since Apr. 1, 1940.

Fanciful drawing of a small boy reading a book and his dog. Filed Sept. 24, 1946 by Helene Pessl, Inc., New York. Claims use since Dec. 12, 1945.

Fanciful drawing of two horse heads apparently joined at the backs of their heads for shampoo. Filed June 17, 1947 by Courtley, Ltd., New York. Claims use since Sept., 1937.

Fanciful drawing of a winged horse for disinfectants and insecticides. Filed June 25, 1947 by Socony-Vacuum Oil Co., New York. Claims use since Oct. 15, 1934.

Fanciful drawing of an insect that appears to be ill for pest control materials. Filed May 27, 1946 by Delk Pest Control, Fresno, Calif. Claims use since Feb. 1, 1938.

TOP-FLITE—This in upper case, extra bold letters for shampoo. Filed Sept. 13, 1946 by Richard Hudnut, New York. Claims use since Feb. 21, 1946.

COIFFURE BY JON HENRI—This in upper and lower case, medium bold letters across the fanciful drawing of a woman's head and shoulders for liquid cream shampoo. Filed Feb. 20, 1947 by Jon Henri, Inc., Cincinnati. Claims use since Oct. 5, 1946.

SMALL FRY—This in upper case, extra bold letters for bubbling bath oil. Filed June 14, 1947 by Parfums Blanchard, New York. Claims use since May 24, 1947.

LADY EVE—This in upper and lower case, medium bold, script letters for the word "Lady" and upper case, bold letters for "Eve" for shampoo. Filed Mar. 20, 1946 by Ferdinand Ruggiero, Inc., Boston. Claims use since Mar. 4, 1946.

Drawing of a frame for baking soda and bicarbonate of soda for use as a cleaning and washing agent. Filed Mar. 11, 1947 by Church & Dwight Co., New York. Claims use since Mar., 1930.

RED SPOT SUDSIQUICK—This in large and small, upper case, inline letters for the words "Red Spot" which appear on either side of a target like design and above the word "Sudsiquick" which is in upper case, bold letters for synthetic type of soap and grease remover. Filed Apr. 14, 1947 by Red Spot Paint & Varnish Co., Evansville, Ind. Claims use since Nov. 1, 1946.

Fanciful drawing of the heads of two horses, which appear to be joined at the backs of their necks, for soaps and shaving creams and soaps. Filed June 17, 1947 by Courtley, Inc., New York. Claims use since Sept., 1937.

COURTLEY—This in upper and lower case, script letters on a vertical rectangular panel for shaving creams. Filed June 17, 1947 by Courtley, Inc., New York. Claims use since January, 1947.

The following trade marks are published in compliance with section 13 (a) of the Trade Mark Act of 1946. Notice of opposition must be filed within 30 days of publication and a fee of \$25 must accompany each notice of opposition.

SCOTCH CLEANSER—This in upper case, open letters, with the word "Scotch" forming an arc above the word "Cleanser" for cleanser. Filed Aug. 7, 1947 by Los Angeles Soap Co., Calif. Claims use since Apr. 26, 1926.

E Z PAK—This in upper case, fancy bold letters in the form of a circle, with the word "Pak" over the cross line on the letter "z" for general purpose cleaner. Filed Aug. 15, 1947 by E-Z Cleaning Products, Miami Beach, Fla. Claims use since Feb. 20, 1943.

STIEFEL'S—This in upper case, reverse letters on a fanciful background for medicinal soaps. Filed Aug. 27, 1947 by Stiefel Medicinal Soap Co., Preston Hollow, N. Y. Claims use since 1847.

GLIMIT—This in upper and lower case, open and shadow letters for non-ionic chemical liquid detergents. Filed Sept. 17, 1947 by General Aniline & Film Corp., New York. Claims use since July 25, 1947.

HEISKELL'S—This in upper case, bold letters for soap. Filed Sept. 24, 1947 by Johnston Holloway & Co., Philadelphia. Claims use since June 25, 1894.

ALBO—This in upper case, extra bold, stencil letters for cleaning preparation. Filed Oct. 1, 1947 by Whittemore Bros. Corp., Cambridge, Mass. Claims use since 1900.

"STOVEBRITE"—This in upper and lower case, extra bold letters for stove polish. Filed Oct. 16, 1947 by Boyle-Midway, Inc., Jersey City, N. J. Claims use since May 12, 1930.

SENSAY—This in upper case, extra bold letters in the form of an arc for soap. Filed Oct. 20, 1947 by Cook Coffee Co., Cleveland. Claims use since Jan. 1934.

OLD ENGLISH—This in upper case, extra bold, old English, letters, for upholstery cleaner. Filed Nov. 3, 1947 by Boyle-Midway, Inc., Jersey City, N. J. Claims use since May 31, 1934.

LE SAUCY—This in upper and lower case, bold, script letters for soaps. Filed Nov. 20, 1947 by New York Make-Up Corp., New York. Claims use since Apr. 1, 1941.

JARDY—This in upper and lower case, bold, script letters for toilet soap. Filed Nov. 20, 1947 by New York Make-Up Corp., New York. Claims use since Mar. 15, 1941.

FOG-A-SIDE—This in upper case, bold letters for antifogging preparation. Filed Nov. 21, 1947 by Factrilab, Inc., Boston. Claims use since Oct. 25, 1947.

THRIFTY MISS NIFTY—This in upper and lower case, extra bold, script letters, with the word "Thrifty" above the other two words for hand cleanser. Filed Nov. 21, 1947 by North Products Corp., Chicago. Claims use since Jan. 24, 1947.

ZEST—This in upper case, open letters for powdered detergent. Filed Dec. 4, 1947 by Adco, Inc., Sedalia, Mo. Claims use since Nov. 4, 1947.

BOUNTY—This in upper case, extra bold letters for sudsing cleaner. Filed Dec. 11, 1947 by Procter & Gamble Co., Cincinnati. Claims use since Oct. 2, 1947.

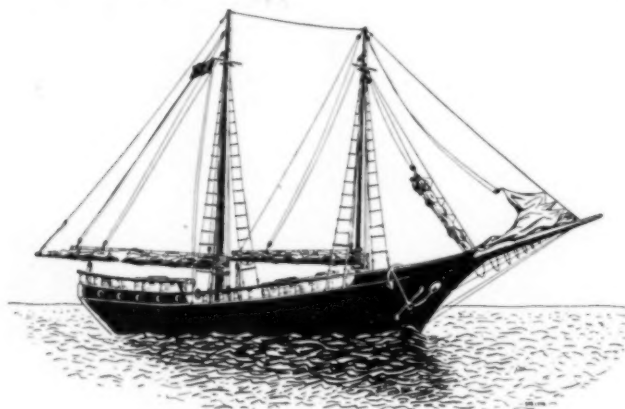
DAL—This in upper case, extra bold letters ascending from left to right for detergent. Filed Feb. 11, 1948 by Ravndal Products, Inc., Orlando, Fla. Claims use since Dec. 11, 1947.

MAYER'S—This in upper case, bold letters for germicides. Filed Sept. 25, 1947 by Louisiana Drug



Est. 1838

Olive Oil
Neatsfoot Oil
Coconut Oil
Cottonseed Oil
Palm Kernel Oil
Stearic Acid
Oleo Stearine
Soya Bean Oil
Castor Oil
Sesame Oil
Lard Oil
Palm Oil
Corn Oil
Peanut Oil
Grease
Tallow
Red Oil
White Olein
Fatty Acids
Soap Colors
Chlorophyll
Soda Ash
Sal Soda
Talc
Caustic Potash
Caustic Soda
"CEREPS"
Superfat



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SESAME OIL	FATTY ACIDS	STEARIC ACID
LECITHIN	LANOLIN and PETROLATUM	BABASSU OIL

Alkalies and Other Chemicals

Textile and Laundry Starch and Sours

Silicate of Soda "Metso*", all types

"Quadrafos", Granular or beads

(a stable polyphosphate for water conditioning and mild but effective detergency)

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THE MAYPONS—Unique surface active agents; prolific foam; high detergency and emulsifying powers; suitable for cosmetic and industrial use.

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Warehouses: New York, N. Y. — Newark, N. J.

Co., Inc., Opelousas, La. Claims use since 1935.

FUME-RITE—This in upper case, bold letters in the form of an arc for fumigant insecticide. Filed July 23, 1947 by Central Chemical Corp. of Maryland, Hagerstown, Md. Claims use since Apr. 10, 1942.

KKK—This in upper case, open letters within a fanciful background for shampoos. Filed July 25, 1947 by K K K Medicine Co., Keokuk, Ia. Claims use since March 1, 1900.

ARDEN—This in upper and lower case, extra bold, script letters for dentifrices and shampoos. Filed Sept. 2, 1946 by Elizabeth Arden Sales Corp., New York. Claims use since Jan. 2, 1910.

HUMICLEAN—This in upper case, bold stencil letters for solution for the control of various bacterial growths. Filed Sept. 10, 1947 by Carolina Aniline & Extract Co., Charlotte, N. C. Claims use since May 24, 1940.

WILSON'S SPI-TOX—The word "Wilson's" in upper and lower case, bold script letters above the word "Spi-Tox" in upper case, bold, block letters for insecticides. Filed Oct. 8, 1947 by Andrew Wilson, Inc., Springfield, N. J. Claims use since Dec., 1937.

MAGNETIC—This in upper case, extra bold, letters for insecticides and fungicides. Filed Jan. 22, 1948 by Stauffer Chemical Co., San Francisco. Claims use since Feb. 3, 1932.

A fanciful drawing of a clown for shampoo. Filed Oct. 8, 1947 by Maurella Products Co., New York. Claims use since Oct. 1, 1939.

VAPOPHOS—This in upper case, extra bold, letters for insecticides. Filed Jan. 3, 1948 by California Spray-Chemical Corp., Wilmington, Del. Claims use since Nov. 24, 1947.

GOLDEN KEY—This in upper and lower case, extra bold, inline type letters, with the word "Golden" above the word "Key" for furniture polish. Filed July 18, 1947 by Great American Tea Co., New York. Claims use since Jan. 1925.

DIVO—This in upper case, extra bold, black letters or cleaner in powder form. Filed Aug. 2, 1947 by Diversey Corp., Chicago. Claims use since Feb. 17, 1947.

SPEC-TAK—This in upper case, bold black letters for metal polish in liquid form. Filed Aug. 2, 1947 by Diversey Corp., Chicago. Claims use since Oct. 4, 1940.

COW—This in upper case, bold black letters in the form of an arc for detergent and cleaner. Filed July 5, 1947 by Church & Dwight Co., Inc., New York. Claims use since July 1880.

A drawing of a cow on a plot of grass for detergent and cleaning agent. Filed July 5, 1947 by Church &

Dwight Co., Inc., New York. Claims use since 1876.

WASHRITE—This in upper case, extra bold, black letters for granulated and laundry soap. Filed Aug. 26, 1947 by Cooter Co., Chicago. Claims use since Jan. 15, 1937.

GREEN PALM—This in large and small capital letters for toilet soap. Filed Sept. 4, 1947 by J. R. Watkins Co., Winona, Minn. Claims use since March 25, 1924.

CLEMENTE—This in upper case bold letters for soap. Filed Sept. 12, 1947 by Los Angeles Soap Co., Calif. Claims use since 1915.

GLIM X—This in open and shadow, upper and lower case letters for liquid detergents. Filed Sept. 17, 1947 by General Aniline & Film Corp., New York. Claims use since July 25, 1947.

PEAU SECHE—This in upper and lower case, bold, script letters for toilet soap. Filed Sept. 30, 1947 by Wright & Lawrence Labs., Inc., Chicago. Claims use since May 28, 1935.

FAIRCREST—This in upper case, bold black letters ascending from left to right for soap. Filed Oct. 1, 1947 by the Fair, Chicago. Claims use since Dec. 31, 1934.

BRIGHT SAIL—This in upper and lower case, script letters for soap powder, soap flakes and hand soap. Filed Oct. 17, 1947 by Great Atlantic and Pacific Tea Co., New York. Claims use since Jan. 4, 1945, Oct., 1945 and Feb. 16, 1946 respectively.

RE-NU—This in upper case, extra bold, black stencil letters for soap. Filed Nov. 13, 1947 by Armour and Co., Chicago. Claims use since Sept. 1928.

Bis—This in upper case, bold letters for toilet soaps. Filed Nov. 28, 1947 by Les Parfums De Dana, Inc., New York. Claims use since Nov. 21, 1947.

ULTRA WASH—This in lower case, extra bold letters, one word above the other on an angle ascending from left to right for all-purpose cleaning compound. Filed Dec. 3, 1947 by Atlantic Refining Co., Philadelphia. Claims use since Apr. 23, 1946.

BOXER—This in upper case, extra bold, black letters, with a fanciful figure of a boxer adorning the top of the larger X for liquid and powdered cleaning compounds. Filed Dec. 8, 1947 by Industrial Chemical Cleaning Co., Houston, Tex. Claims use since Nov. 14, 1947.

GRIFFIN A-B-C—This in upper case, bold letters with the word "Griffin" forming an arc and the letters A B C below for shoe cleansers and polishes. Filed Jan. 13, 1948 by Griffin Mfg. Co., Brooklyn, New York. Claims use since Sept. 1908.

OILATUM—This in upper case, bold letters for medicinal soaps.

Filed Feb. 26, 1948 by Stiefel Medicinal Soap Co., Preston Hollow, N. Y. Claims use since Dec. 6, 1947.

UNCLE NICK'S—This in upper case, bold letters for detergent. Filed Mar. 17, 1948 by Oil-Dry Corp. of America, Chicago. Claims use since Oct. 13, 1947.

SAXON—This in upper case, bold letters for soap and shampoo. Filed Sept. 12, 1947 by Royal Mfg. Co., Brooklyn, N. Y. Claims use since June 1914.

TREEZE—This in upper case, bold letters for animal cleaners. Filed Oct. 29, 1947 by Wm. Stieh and Co., Teaneck, N. J. Claims use since Oct. 23, 1947.

TO-NA-CIDE—This in upper case, reverse, bold letters on a rectangular background from which points extend from corners and upward from top center for insecticides. Filed Oct. 13, 1947 by Roman J. Irwin, Inc., New York. Claims use since March 1935.

ALROTERGE—This in upper case, extra bold letters for detergent. Filed Jan. 14, 1948 by Alrose Chemical Co., Cranston, R. I. Claims use since Apr. 22, 1947.

DIVERBAC—This in upper case, bold, stencil letters for disinfectant in powder form. Filed Feb. 12, 1948 by Diversey Corp., Chicago. Claims use since Jan. 14, 1948.

BATHSHEBA—This in upper and lower case, bold, italic letters for toothpaste. Filed Feb. 19, 1948 by Wolff Freres, Inc., New York. Claims use since Feb. 18, 1948.

SONG OF SONGS—This in upper and lower case, bold, italic letters for toothpaste. Filed Feb. 19, 1948 by Wolff Freres, Inc., New York. Claims use since Feb. 18, 1948.

FORHAN'S—This in upper and lower case, extra bold letters with bold underlining extending from end of the "n," for toothpaste. Filed Feb. 21, 1948 by Zonite Products Corp., New Brunswick, N. J. Claims use since Sept. 1, 1915.

"MAKING HEADWAY"—This in upper case, bold letters for hair shampoos. Filed Feb. 25, 1948 by Maurella Products Co., New York. Claims use since Dec. 18, 1947.

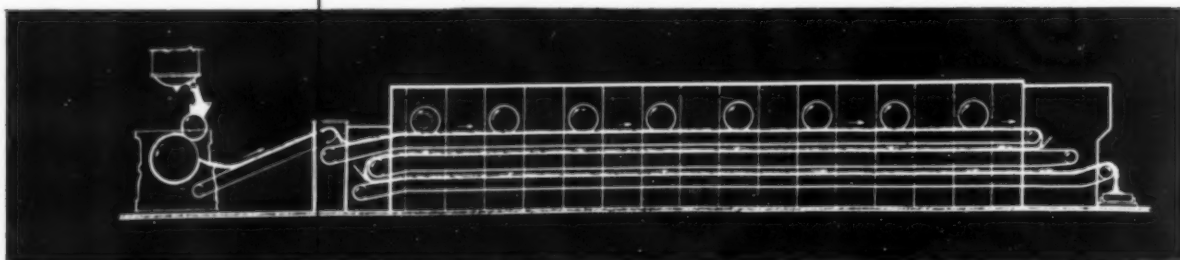
SCOTCH SOAP—This in upper case, extra bold, oversized, notched letters one word above the other for soaps. Filed Aug. 7, 1947 by Los Angeles Soap Co. Los Angeles. Claims use since Oct. 4, 1932.

DAY'S LIQUID PINE CLEANER—This in upper case, extra bold letters for the word, "Day's"; upper case, light letters for the word "Liquid," which appears under the previous word, and upper and lower case, extra bold letters for the words, "Pine Cleaner," which appear below

(Turn to Page 157)

takes both

for smooth performance



Precision engineered
chilling machine

Carefully designed dryer

IN SOAP DRYING, TOO . . .

Smooth, top quality soap flakes are dependent upon two important factors—first, uniformly formed ribbons and second, carefully controlled drying. One without the other—and the finished flakes will not be top quality. There is no chance for uniform drying—even in the most carefully designed dryer—if the ribbons coming to the dryer vary in uniformity. Neither is there the slightest chance for uniform drying of the finest formed ribbons—unless conditions within the dryer are accurately controlled. Takes both for smooth performance.

Ribbon uniformity is governed by the degree of precision with which the chilling machine is designed and built. Proper drying is possible only to the extent that there is a uniform circulation of heated air, for the correct drying time and at the temperature to suit the character of the particular soap being dried.



Combining their knowledge of machine and dryer design and a thorough acquaintance with the needs of the soap manufacturer, Proctor engineers have developed the Proctor automatic flake soap system. This system provides a chilling machine that is designed and built to make uniform ribbons—and a dryer that permits careful control of all factors affecting moisture evaporation from the carefully formed ribbons. Temperatures, air-circulation and speed at which the conveyors carry soap through the dryer may be altered to meet individual requirements. The system is built with the precision of a delicate machine and the ruggedness of the Brooklyn bridge to assure you consistently fine results through many years of service. Write for details today.

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RAW MATERIAL

MARKETS

As of October 8, 1948

THE west coast shipping strike and its effect on the price and supply of copra and, consequently, coconut oil is the big market news of the month. As a result of the strike, which has tied up west coast ports, points of entry to the U. S. for the major share of imports of copra and coconut oil, the price on what oil is available has risen somewhere between four and five cents a pound for spot deliveries. Small lot sales of resale oil are quoted at from 27-28 cents.

Faced with a stoppage of coconut oil from the Philippines, soapers turned their attention to Ceylon as a source of supply. However, it was found that War Food Order 63 still banned U. S. imports of coconut oil

from Ceylon, except in cases where firms had a pre-war history of such imports. The availability of import licenses to only a few of the larger concerns brought an immediate protest by the smaller soapers. The U.S.D.A. modified the order to permit smaller companies to obtain licenses to import the Ceylon oil during the emergency period. However, with the news that Ceylon oil might be brought in, the price of coconut oil from the Philippines for December delivery dropped to 21¾ cents a pound, ¼ of a cent under the Ceylon price. Whether or not it will still be worth while to import Ceylon oil seems questionable at the moment.

One of the large soap firms has offered to bulk its oil shipments from

Ceylon with those of the smaller firms and something may develop from this proposal. The prospects of a long drawn out shipping strike on the west coast make the position of soapers doubly bad since they have also reduced the size of their inventories to from 30 to 60 days because of relatively high oil prices. Normally, soapers carry three to four months' supplies.

While coconut oil prices were moving forward during the month, other oils and fats prices were slightly lower, the edible oils in particular. Tallow is a half cent lower at 13 cents than on the corresponding date in September, with demand for the fancy grade described as "steady" and the lower grades weaker.

CRESYLIC ACIDS

Barrett* Cresylic Acids are especially valuable in textile scouring compounds for removing natural greases and paint from raw wool. These standardized mixtures of tar acids, including cresols, blended to meet particular commercial requirements, are also widely used in the production of commercial disinfectants and metal-cleaning compounds.



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Lard is fractionally lower at 18½ cents a pound than the price of a month ago. Other oils whose prices have declined during the last 30 days or so are crude cottonseed oil, which went from 23 cents to the current price of 18 cents; soybean oil down from 23½ cents last month to the present price of 18 cents; crude corn oil is off three cents, having been 24½ cents at this time last month; peanut oil down a cent and one-half from the 25½ cent price prevailing early in September.

Production of fats and oils from domestic materials during the 1948-49 crop year is now expected to be considerably in excess of the 1947-48 figure, and the largest in our peacetime history. This prediction, made by the Department of Commerce, indicates a production of nearly 10½ billion pounds of fats and oils from domestic materials. The figure is 600 million pounds greater than that of the season just ending. Previous larger output was accomplished during the war years of 1942 and 1943. Mainly responsible for the great in-

crement expected next year are the edible vegetable oils of which an output of 3.6 billion pounds has been indicated.

Stocks, however, reflecting export shipments and reduced imports, are relatively low. Factory and warehouse stocks of all fats and oils were 1.4 billion pounds on June 30, 1948 which is 250 million pounds lower than on the same date a year earlier. Stocks on June 30 were more than 800 million pounds below stocks held on similar dates in prewar years. Prewar month-end stocks of over two billion pounds were held in years when domestic consumption was 750 million pounds lower and net imports over one billion pounds higher than current levels.

The price factor is affected by the need for continuing aid to Europe and maintenance of support prices in the U. S. Increased crops in other parts of the world are beginning to bring about gradual price reductions, particularly on future quotations.

A Department of Agriculture estimate of future production of fats

and oils from domestic materials sees a larger output than in the comparable 1947-48 period, but indicates the bulk of the increase will be in the edible category, with the inedible figure slightly under last year's. Reduced hog numbers are expected to reduce lard production about 125 million pounds.

An increase in the available exportable surplus of palm kernels from French West Africa was reported by a U. S. Vice Consul at Dakar recently. Exports totaled 44,114 short tons during 1947, while in 1948 it is believed the figure may reach 66,800 tons. Palm oil exports last year were stated to be 785 short tons.

Another soap making material currently reported to be in better supply is caustic soda. On flake and solid caustic, production is said to be slightly in excess of demand, with prices still firm.

Paradichlorobenzene dropped another cent and one half, and is now quoted at 11 cents per pound in car load lots, 12½ cents l.c.l. It is at its lowest point in recent years.

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More and more fatty acid users are "going over to Hardesty." It's becoming a *standard* practice because Hardesty has such *standard* products—fatty acids of such uniformity that manufacturers know *exactly* what they're getting. Hardesty's delivery dates are as reliable as their products. When Hardesty promises a shipment, it arrives on schedule . . . and *ready*

to go to work. That means a lot. A bad shipment, an inaccurately filled order, can cost losses in four figures—lost manpower hours and lost customers for end-products. For fatty acids with "pedigrees," join the hundreds of purchasing agents who are "going over to Hardesty"—W. C. Hardesty, 41 East 42nd Street, New York 17.

Red Oil Glycerine Stearic Acid White Oleine Stearine Pitch
Hydrogenated Fatty Acids Animal and Vegetable Distilled Fatty Acids



W. C. Hardesty Company

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Perfumes in Soaps

CHANGES in the odor and color of a scented soap depend on two causes: (1) the soap itself, (2) the odorants in it. Rancidity in soap results in formation of oxidized fatty acids having an unpleasant odor. The perfume becomes mixed with a very unpleasant smell of tallow and at a later stage it is totally masked by the smell of rancidity. Another phase of this problem is that decomposition and oxidation products of the perfume may be of such a nature as to neutralize the small amount of excess alkali, which is always indispensable to the preservation of the soap. Discoloration may be the effect of light rays. Perfumes said to be stable in soaps may be so in one kind of soap but not in another, so that odor materials should vary according to the type of soap.

Experiments have been carried out with a white, more or less unscented soap containing 0.02 percent of free alkali. A number of the most widely used perfume ingredients were added to the soap, and the effect noted. For each perfume ingredient, four samples were prepared; two with fully boiled soap and two with cold-process soap. One cake of each variety was wrapped in waxed paper, and the other left unwrapped, exposed to light and air. Perfume materials studied were classed by structure.

Alcohols. Primary alcohols including citronellol, geraniol, phenyl ethyl alcohol, in no way discolored the soap. With citronellol and geraniol the odor persisted for about 18 months—the duration of the experiment—in the wrapped soaps and for

one month in unwrapped soaps. Tertiary alcohols such as linalol and terpineol did not discolor soap and the odor persisted throughout the experiment in the wrapped soaps.

Aldehydes. Aldehydes are relatively unstable compounds which may be oxidized by air to the corresponding acids; they also lend themselves to polymerization and condensation. Although hydroxy citronellal is present in many formulas for soap perfumes, tests showed that it is unstable and not suitable for use in soap. *Alpha*-Amyl cinnamic aldehyde and hydrocinnamic aldehyde are the most important aldehydes for the soap industry, and are the most stable of the aldehydes that might be used.

Ketones. Ionone, methyl ionone, acetophenone, and methyl acetophenone, showed no change in the color of wrapped soaps and the odor persisted throughout the tests. These ketones are ideal products for the soap industry.

Phenols. Safrole retained its odor in all the soaps and did not give rise to discoloration. Eugenol and isoeugenol, like vanillin and ethyl vanillin, were light-sensitive, turned dark in daylight, and eventually resinified.

Acids. Phenyl acetic acid has been used to give a honey, rose, and other flower notes. This acid lost its odor in a short time. In general the use of acids is detrimental.

Ethers. Almost all of the essential oils contain ethers, such as oils of bergamot, lavender, geranium, etc. As a general rule the behavior of ethers in milled soap base was good. In cold-process soaps, where the per-

fume was incorporated before the paste had completely saponified and at a high temperature, the total or partial saponification of the ethers was brought about. Acetates, benzoates, cinnamates, and salicylates did not undergo any appreciable change. On the other hand, propionates and butyrates gave the soap a rather rancid odor. Phenyl acetates gave the soap a glassy appearance; anthranilates in time produced both an unpleasant odor and discoloration.

Lactones. Since coumarin is somewhat sensitive to alkalies, it is better to use 3-methyl, 3-ethyl, or 3-propyl coumarin. Coumarins substituted on the benzene nucleus cannot be used because of the ease with which the lactone linkage is opened.

Nitrogenous Compounds. Musk ketone, musk ambrette, musk xylol, and bromostyrol, retained their odor in wrapped soap. Bromostyrol is a derivative of cinnamic acid in which the double bond is saturated, which makes it very stable. Its low price makes it an important product in soap perfume.

Essential Oils. Use of essential oils in the soap industry is far more complicated than that of synthetic substances, and calls for a knowledge of the components of each oil as well as of the reactions between the components. For example, Java citronella contains 80-90 per cent of alcohols such as geraniol and linalol, while Ceylon citronella oil contains only 60-65 per cent. The odor of the latter changes more rapidly. Ceylon citronella also contains more terpenes. In general these are objectionable because they



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"One to go!" The cylindrical paper containers now widely used for the packaging of ready-to-eat foods were originally made as "take home" draught beer containers.

Uncanny Facts

There is no one cork tree! Cork is actually an insulating layer that forms on a number of different kinds of trees, the most common being the evergreen oak.



When this big tree was only an acorn -- about 150 years ago -- the average man had to eat pretty much according to the season. A few foods could be dried, smoked or salted -- but even the wealthiest table could not boast the great variety of fruits, vegetables, meats and fish that now come in cans, in season and out.

However, cans are only one part of Continental's great family of products. Others include paper containers and cups, fibre drums, plastic products, steel containers, crowns, and cork products.

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Here's another of Continental's national ads. We hope it will help you to get to know us better. In your field, as you know, there's nothing better than the containers made by Continental. These include: "Tripletite" friction-plug containers, pails, square or oblong "F-style" cans—plain or lithographed with your own design.

tend to resinify under the action of light and air, causing yellowish-brown spots. However, a trace of terpenes does not discolor the soap.

Oil of bergamot is high in stable compounds and relatively low in harmful elements. Oil of thyme is high in phenolic compounds which are relatively stable. Concrete oil of lavender is far more suitable to use than distilled oil of lavender. The former contains the entire essence of the lavender flower, while the latter contains pinene and other objectionable terpenes. Oil of lemon and oil of sweet orange proved to be unstable in soap and are not recommended.

Resinoids. Siam benzoic consists of about 40 per cent benzoic acid and esters of benzoic acid, and five per cent vanillin. It is an excellent fixative and keeps well in soaps. Labdanum varies in color according to its source of supply. It occupies a prominent place as a fixative. Opoponax and myrrh did not exhibit favorable behavior when used in soap. Resinoids of oak mosses vary a good deal but yielded good results. They would need to be tried out by the perfumer so that he could make his own selection.

Most synthetic perfumes volatilize rapidly. There is no connection between this property and resistance to free alkali. Perfumed soaps should be wrapped as hermetically as possible and surrounded with a porous container. E. Gorokhoff, *Soap, Perfumery, Cosmetics* 21, 700-704 (1948).

Soap Utilization

The utilization of soaps of different composition was studied when used for laundering in hard and partly softened water. The washing tests showed the following results:

Soda Ash plus Soap made from	Per Cent Utilized in	
	Hard Water	Partly Softened Water
Stearin	78.7	81.6
Tallow	60.8	87.5
Fat	48.6	87.7
Peanut oil	25.9	98.2
Coconut oil	46.6	88.0

Tallow soap with varying ratios of silicate from 0.55 to 3.51 per cent showed soap utilization ranging from 17.1 to 65.4 per cent when used in hard tap water. K. Bo, *Tids Tekstilt.* 6 74-6 (1948); through *Chem. Abs.*

Sulfonation Methods to Produce Synthetics

A REVIEW of commercial sulfonation processes covers the methods in use and patented since 1941 for production of compounds containing the sulfonic acid group,—SO₃H with sulfur directly connected to a carbon atom. Paraffin hydrocarbons can be sulfonated with compounds containing sulfur trioxide only under vigorous reaction conditions, which usually give rise to both sulfonation and oxidation products. Ethyl acetate is said to inhibit oxidation. Most of the work on sulfonation of paraffins has been with sulfuryl chloride or sulfur dioxide-chlorine mixtures, called sulfochlorination. The latter is the Reed reaction, which has been applied for producing numerous wetting and other surface-active agents. A mixture of sulfochlorinated isomers usually results, so that a good deal of effort has been made to evolve methods which will give monosubstitution products. Sulfur dioxide and oxygen can be used to introduce the sulfonic-acid group in the presence of catalysts. Addition reactions with sulfites and bisulfites are also used.

Unsaturated Compounds

Olefins may be sulfonated under conditions that either encourage addition of the sulfonating agent to form saturated aliphatic derivatives, or to avoid addition, thus preserving the unsaturated character of the compound. Both methods have received considerable attention.

Aromatic Compounds

Benzene monosulfonic acid has been produced by use of excess of one of the reactants. It can also be obtained by reacting stoichiometric amount of benzene and sulfuric acid in an inert high-boiling solvent, while removing water by azeotropic distillation. Naphthalene monosulfonic acids can be produced by a similar technique.

Sustained commercial interest in long-chain alkyl aryl sulfonates is evident from the patent literature. Many of these sulfonate products are complex mixtures of compounds, derived chiefly from petroleum and coal-

tar fractions, which possess valuable wetting and detergent properties. Liquid sulfur dioxide is stated to be an advantageous medium for effecting sulfonation, or combined condensation and sulfonation, since it avoids polymerization, oxidation, charring, and other side reactions, and can also be used to provide close control of reaction temperatures. Use of liquid sulfur dioxide in a closed system permits economical operation. An improved process for preparing alkyl aryl sulfonates involves reacting an aliphatic hydroxy compound containing more than eight carbon atoms, and an aromatic hydrocarbon, with a mixture of sulfuric acid and sodium pyrosulfate. This mixture is more effective than sulfuric acid alone, and avoids the dark colored products obtained when oleum is used.

Technical Developments

Batch-processing methods still predominate. It is evident from BIOS and similar reports that such methods were employed almost exclusively by the German chemical industry. However, continuous sulfonation has found increasing application to the manufacture of large poundage products such as organic sulfonates possessing wetting and detergent properties, for example, benzene monosulfonic acid and 2-naphthalene sulfonic acid. Although continuous operation generally provides increased production capacity and permits improved process control and quality of product, it entails higher process development costs, larger capital expenditure for equipment, and need for more highly skilled operators.

Partial pressure distillation has been applied to promote the batch sulfonation of aromatic compounds with sulfuric acid, such as benzene and naphthalene to the monosulfonic acid derivatives. This method drives the reaction to completion and avoids formation of undesirable isomers.

Equipment is described for continuous sulfonation methods. G. F. Lisk, *Ind Eng. Chem.* 40, 1671-81 (1948).

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By E. G. THOMSEN, Ph.D.

METHODS for drying soap have been improved constantly year in and year out for many years. The drying of soap for the production of flakes is particularly noteworthy. Among those who have brought about many refinement in this field are Proctor and Schwartz, Inc., Philadelphia whose flake soap dryers are used by most soapers. The company has turned out a large volume of dryers and has improved upon them greatly over the years. Even with improvements, proper care in operating the drying system is still of paramount importance. The writer intimated to Proctor & Schwartz that information regarding the operation of soap dryers would be helpful and they have cooperated in sending us suggestions based upon their engineering department's observations.

Our experience with their machines goes back to the days when soap makers looked upon the drying of soap by chilling it in liquid state on a roll and then conveying it into a heated air, drying compartment as a new-fangled idea. Many condemned the process for not permitting the soap to fit properly and on the basis that the rapid drying under intense heat was bound to produce rancid or dark-colored toilet soap. It was maintained that the safe way to produce good toilet soap for milling was to frame, slab, chip and air dry the soap. The space required, the labor necessitated and the thick flakes lacking in uniformity resulting from the old procedure, as against the many advantages of a flake soap dryer, brought about the modernization in drying soap in spite of objections.

At first, dryers were equipped with rolls of uniform diameter very much on the order of a soap mill. A long step forward was made with the introduction of a large chilling roll in conjunction with one small roll. Accurate machining and precision engineering of the rolls made it possible to

produce an absolutely uniform layer of solidified soap on the large roll of the new and improved dryer.

While the Proctor dryer is not



DR. THOMSEN

difficult to operate, by no means will it produce the best possible flake under all conditions. The forming of highly satisfactory flakes requires careful and accurate control in the operation of the machine. The process is a precision one. However, it allows for minor variations in the composition of the soap to which the flexibility of the drying process readily adapts itself.

According to Proctor and Schwartz, their automatic flake soap drying system must have continued, close attention paid to certain instructions.

In order to produce satisfactory, uniform flakes, Proctor and Schwartz recommend:

"1. The soap should be delivered from the kettle or crutcher to the soap hopper uniformly with the same composition, moisture content and temperature.

"2. The soap should be carefully distributed across the hopper width and protected against outside influences which might cause temperature variations.

"3. The feed and chilling roll

should be carefully adjusted and be supplied constantly with proper, unvarying quantities of heating and cooling mediums. This results in the proper transfer of the soap from the feed to the chilling roll and the proper chilling of the liquid soap on the latter roll.

"4. The soap knife must be kept properly sharpened and adjusted to the chilling roll so it will remove the chilled soap from the roll in uniformly thick ribbons.

"5. So that the film thick soap ribbons at the knife will not be unduly thickened, it is necessary that the ribbons be pulled away from the knife with a uniform tension by the transfer conveyor located between the chilling machine and the drying chamber.

"6. The dryer aprons must be carefully operated at speeds which will provide for the interlacing of a light loading of ribbons on the top conveyor. A progressively heavier loading of ribbons on the successive conveyors should be of such depths that adequate drying time is provided without the loading being great enough to adversely restrict the air flow through the soap layer on the aprons.

"7. The dryer temperatures must be carefully adjusted to the points where the necessary water will be removed from the soap without melting it in the early drying stages or delivering it too hot when completely dried. Complementary to proper temperature adjustment, the correct humidity must be maintained within the machine for the exhaust air to carry away the moisture from the soap as fast as it diffuses to the surface of the ribbons."

Air conditioning, which has been adapted to meet specific needs in various processes, is now available to many industries. Air conditioning is extremely helpful in the production of soap flakes and the control of humidity and temperature is facilitated by dryers located in air conditioned areas. When operating a soap flake dryer under these circumstances, it should meet with the following conditions according to Proctor and Schwartz's engineers.

"1. A heat jacketed hopper on the chilling machine should be pro-

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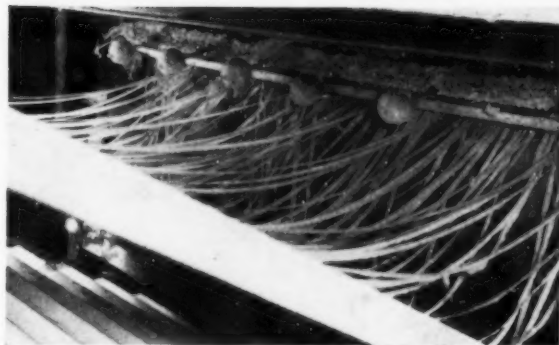
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Soap should be delivered to soap hopper always with the same composition, moisture content and temperature and should be carefully distributed across the hopper width as is illustrated above.



Photographs courtesy of Proctor & Schwartz

Knife should be properly sharpened and adjusted to the chilling roll so that it will remove the chilled soap from the roll in uniformly thick ribbons. This is shown in the above photograph.

vided if the consistency of the soap necessitates a sufficiently heavy hopper loading, otherwise non-uniform cooling of the soap would result.

"2. Accurately ground feed and chilling rolls are necessary so that a precision thickness soap film can be deposited on the chilling roll.

"3. Adequate internal piping and spray systems in both rolls are required so the desired surface temperature can be uniformly maintained on each roll.

"4. Provision is to be made for dividing the surface film of the soap on the chilling roll into uniform ribbons of desired width and for removing them from the surface of the roll with a uniform tension on the ribbons.

"5. Provision for adjusting the time for the soap to pass through the drying chamber is needed, while maintaining the proper ratio of the individual conveyor speeds.

"6. Proper temperature controls on the drying machine are important.

"7. A flexible exhaust system to maintain the humidity inside the drying chamber within desirable limits is imperative." (*To be continued*)

Micron Particle Sizer

RECENTLY we discussed the disintegration of soap down to micron sizes. We have been asked for more specific information as to how these sizes can be determined since we mentioned methods other than screen tests only very briefly in our article.

Fisher Scientific Co., New

York, is offering its "Sub-Sieve Sizer." By using this equipment, particle size determinations of from 0.2 to 50 microns may be made quickly. The sizer employs the air permeability method. A sample is placed in the instrument and air pressure applied. Particle size can be read in microns directly from a copyrighted calculator chart.

Fat Antioxidants

TWO new antioxidants for fats and oils have recently been getting considerable publicity. These are offered by Tennessee Eastman Corp., Kingsport, Tenn., under the registered names "Tenox HI" and "Tenox BHA." It is claimed that these stabilizers will protect edible fats and oils against rancidity for the usual period required for processing, distributing and consumption by the ultimate user. "Tenox HI" is a highly purified hydroquinone and "Tenox BHA" is butylated hydroxy anisol. The latter is particularly good for preserving lard. "Tenox HI" also prevents the loss of vitamin A during storage periods.

Booklet on Aromatics

"Something about the Senses," a 32-page and cover, 5 1/2 x 7 1/2 inch booklet dealing with aromatic chemicals was published recently by Monsanto Chemical Co., St. Louis. The booklet, which is divided roughly into two sections, discusses the role of aromatic chemicals in everyday life, something of the physiology of taste and smell and some historical background on perfumes and perfuming. The second part of the illustrated

booklets lists the technical data, including applications of aromatic chemicals such as coumarin, "Ethavan," methyl salicylate U.S.P. and vanillin made by Monsanto. Solubility tables for the materials are also included.

Atlas Detergent Booklet

Atlas Powder Co., Wilmington, Del., recently issued an eight-page booklet on "Renex," its non-ionic synthetic detergent. The booklet discusses the product for laundering, compounding and for textile and fiber scouring. It tells what "Renex" is, briefly describes some of its properties and lists in tabular form the product's general characteristics. The section on institutional and commercial laundering carries a table showing typical wash cycles using "Renex." Claimed advantages of the product, which comes in two forms, in large laundry operations are mentioned. The final section of the booklet, which deals with compounding with "Renex," lists typical formulas for a number of types of products for home laundering, dish and bottle washing, wall cleaning, automobile cleaning, dry cleaning, wet cleaning and spotting. Copies of the booklet are available from the Industrial Chemicals Department, Atlas Powder Co., Wilmington 99, Del.

New Aroscent Catalog

Aroscent, Inc., Brooklyn, recently announced publication of its new wholesale catalog and price list of its aromatic raw materials for perfuming soaps, and cosmetics.

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Use the Moisture Teller

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- 1 Moisture in the sample is quickly converted to vapor which is carried out through the filter cloth bottom of the sample pan by an adequate stream of hot air.
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- 1 Moisture Teller dries one sample at a time or may be used for the rapid drying of several samples simultaneously.
- 2 Moisture Tellers are available in several models which accommodate sample pans having diameters of 2 3/4", 5 1/4" and 8" with depths of 1", 2", 4" and 12", for samples of from 1 to 500 grams.
- 3 The samples may be chemicals, liquids, sands, textiles, foods, tobacco, feed, wool, rubber, soap products, solids or fats in liquids and dairy products.

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New Seal-Spout Folder

A new, four-page folder on package spouts was issued recently by Seal-Spout Corp., Newark, N. J. "Seal-Spouts," metallic pouring spouts for granular products, can be inserted in standard packages by means of the company's inserting machine, which can be leased for use in production lines. The machine automatically inserts "Seal-Spouts" without making a hole in the package.

Spectrophotometer Bulletin

E. Machlett & Son, New York, recently issued a bulletin on the Coleman junior spectrophotometer "Model 6A," which may be used as standard for specifications for vegetable oil color. Readings taken on one instrument are applicable to all instruments at laboratories in different locations. An eight page bulletin, "211" is available that illustrates and describes the instrument.

New Acid Pump

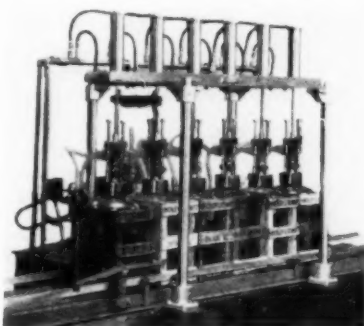
A foot or hand actuated pneumatic pump for transferring acids and other liquids from carboys, barrels or drums was announced recently by General Scientific Equipment Co., Philadelphia. No tilting of the container is necessary and liquids flow smoothly and stop instantly with the new pump. Liquids being pumped come in contact only with the corrosion resistant tube. Lead tubes for sulfuric, hydrochloric, hydrofluoric and other acids are available. "Saran" plastic tubes are furnished with pumps to be used for nitric, muriatic, citric, phosphoric, acetic, and other acids.

Films on Retail Selling

A series of five sound slide films "Behind the Counter," has been produced by Jam Handy Organization, New York, and is now being distributed for use by retail sales organizations, it was announced recently. The series outlines the tested principles of leading selling organizations, universities, and other authorities. The films present approved ways of meeting people in sales situations. Subjects covered in the films are: friendliness, attentiveness, helpfulness, sincerity and enthusiasm.

New MRM Air Filler

MRM Co., Brooklyn, recently announced the development and construction of a six-spout, five gallon



air operated filling machine. According to the company, this is the first time a filler for five gallon (demi-john) containers has used air to operate the spouts. Each spout has an air cylinder to actuate it individually. The machine functions in this fashion: An operator steps on a foot-operated air valve which raises and lowers the entire filling head. The conveyor brings into position the six, five gallon containers. After they are filled, the conveyor carries them off and brings six more containers into position, filling at the rate of 10 per minute. Filling is uniform, by means of automatic overflow.

Spouts are supplied with liquid from a 50 gallon tank connected with the main reservoir. The tank is made of stainless steel and completely covered. A 50 pound pressure float valve in the tank acts as a safety cut-off. All metal contact parts of the filler are also of stainless steel. The air supply is a vacuum unit with a two horse power motor and a 25 cubic feet per minute vacuum pump.

New Packing Manual

A new edition, the sixth, of the "Speed Packing Manual," produced by Sherman Paper Products Corp., Newton Upper Falls, Mass., was issued recently. Nearly 200 photographs and drawings illustrate the latest edition, showing step-by-step instructions for packaging a wide variety of products. Paper samples are included, as is a list of the firm's distributors. Copies of the manual are available by writing the company.

Handling Tall Oil

"Handling Tall Oil" is the title of the latest in a series of bulletins being issued by the Tall Oil Association, New York. The current bulletin is said to summarize the experience of users of tall oil in handling various grades and how they may best be loaded and unloaded at points of use. Subjects discussed include viscosity, cooling effects, crystallization of abietic acid, redissolving of abietic acid, color preservation, tall oil shipments and storage, storage tank heaters, pumps, piping, gauging tanks and safety notes. Copies of the present bulletin, No. 3, are available by writing the association at 122 E. 42nd St., New York 17.

New Booklet on Lignin

A 32-page booklet, "Indulin, Lignin from Pine Wood," a bulletin of the development department of the Industrial Chemical Sales Division, West Virginia Pulp and Paper Co., New York, was issued recently. The booklet discusses the chemistry of lignin, gives typical analyses for "Indulin A" and "Indulin C," and lists the solubilities of "Indulin" in various solvents. "Indulin" is one of the first standardized grades of sulfate lignin available for experimental evaluations and commercial operations. The booklet describes the uses for "Indulin" and gives complete bibliographies on each suggested application, which include insecticides, fungicides, etc.

Sonneborn Product Folder

A new, six-page, illustrated folder describing the company's line of white mineral oils, petrolatums and specialties for soaps, cosmetics and related products was issued recently by L. Sonneborn Sons, Inc., New York. The folder, which bears the title "Sonneborn Refined Petroleum Products for Better Cosmetics," shows laboratory and external plant and refinery pictures of company operations. On the final page of the folder there is a chart of various end-uses for the company's line of white mineral oils and cosmetic specialties. A chart of properties of the company's petroleum products used for cosmetics and toiletries is also shown.

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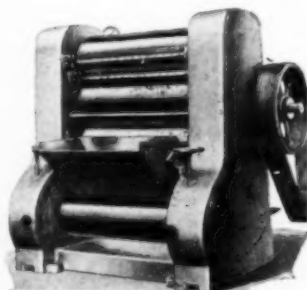
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By John W. McCutcheon

THE flurry in the synthetic detergent field seems to have settled down somewhat. Nearly a month has passed without someone announcing the introduction of a new product in the retail field. Each of the three largest companies now has two synthetic products: a heavy duty compound for general cleaning and laundry work, and one for lighter duty washing such as dishes and the laundering of dainty things. This division appears logical and follows a similar pattern in the field of soap powders and flakes. That a need for two types of product exists is probably best illustrated by comparing the results of two market surveys conducted in the same area.¹ In 1947 it was shown that "Dreft" was used by 54.3 percent of those questioned. In the following year, after the introduction of "Tide," a heavy duty synthetic detergent also made by Procter & Gamble Co., "Dreft" use dropped to 26.6 percent. "Tide" use, on the other hand, rose from less than one percent to 33.2 percent. The overall usage remained about the same. The foregoing development is interpreted by the writer as indicating that the makers of "Dreft" and "Tide" correctly anticipated the market requirements for two products and met them even, perhaps, at some inconvenience. In any case, the retail division of synthetics into light and heavy duty types is now well established and we may consider that another milestone of progress has been passed.

* * *

Further recent development in synthetics appears to be the application of non-ionics to detergent use. The non-ionics, for the most part liquids, are difficult to put in convenient form for retail packaging. Even when built to a

dry product, frequently they are slightly hygroscopic, which prevents a free flow of the powder. In addition, they often foam very poorly so that the normal association of suds with cleaning action is entirely absent. It is difficult for the lay mind to conceive that the work is being done. For these reasons, a recent paper by Dr. Geo. E. Barker² should be studied with some care. He shows how the addition of small ratios of non-ionics in the above class greatly enhances the detergency of such anionics as the alkyl aryl sulfonates.

Possibly a future development may lie in this direction. This could easily be a boon to the small soaper who might wish to enter this field. Under present conditions the alkyl aryl sulfonate appears the most logical product for him to produce, because he can purchase the alkane from diverse sources or in certain cases he can make it himself. In this last instance, unfortunately, the reactions most simply carried out, yield the poorest alkanes for sulfonation. The better types involve intricate processing that only the large petroleum manufacturers are capable of handling. On the other hand, purchase of the alkane involves its difficulties also. The most easily sulfonated are frequently also the poorest in regard to detergency. The most highly prized are frequently very fragile, and require a sulfonation technique not always available at a cost commensurate with the production contemplated. Therefore, the up-grading of an alkyl aryl sulfonate by the addition of a non-ionic may be the answer to some of these difficulties.

¹ 1947 and 1948 Consumer Analysis of the Columbus, O. market. Published & compiled by the Columbus Dispatch.

² Non-Ionic Detergents, *Soap & Sanitary Chemicals* XXIV #6, P. 46-48, & 65. (1948)

The great interest in mechanical dishwashers since the war, and the detergent compounds in use with them, has been phenomenal. It appears to the writer, that a simple inexpensive spray type device, holding its own soap or detergent, and attachable to the kitchen faucet, would be a boon to the housewife. We understand such a device is soon to appear on the market.

* * *

Continuous soap making methods are drawing ever wider attention among soapers, particularly in foreign fields. Some of the inquiries received or noted in the foreign press indicate certain misconceptions that a brief review might help to clarify. In the first place, soap kettles are not, as yet anyway, obsolete pieces of equipment. There are a number of complete plants in America, operating entirely without kettles. Other plants operate in part by a continuous process and in part with kettles. The majority, of course, have kettles. Continuous processes in any field, usually involve the manufacture of large quantities of the same grade of material. Soap-processes developed to date are no exception. It would not be practical, for example, to have a continuous unit produce toilet soap one day and laundry soap the next. Usually the unit is set up to produce one and only one type of product. Two or three thousand pounds an hour would appear a minimum production capacity to justify the capital outlay for a continuous process plant. The minimum would vary with the type of process employed, of course. Such production would amount to about a million or a million and a half pounds of soap a month, a considerable amount of only one product. Continuous production methods lend themselves most readily to savings in labor. In the soap industry, where labor probably represents less than five percent of the total expense, this is not a factor. In countries where the wage scale is still lower than in the U. S. it would be still less attractive. Probably the two greatest advantages to be gained by a continuous soap process are (1) the decrease in

(Turn to Page 99)

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PRODUCTS

AND PROCESSES

Liquid Soapless Detergent

Cellulosic derivatives have marked dispersing and emulsifying power, and make good additives to synthetic detergents which may be deficient in the former property. A formula for a synthetic liquid detergent is as follows:

	Parts
Methyl ethyl cellulose	2
Technical triethanolamine	
lauryl sulfate	30
Methyl <i>para</i> -hydroxy	
benzoate	0.13
Water	to 100
Color to suit	

Solutions containing over 5 per cent of the cellulose derivative yield gels,—with less than this, more or less viscous liquids, depending on concentration. R. E. M. Davies, *Soap, Perfumery, Cosmetics* 21, 684-6 (1948).

Hardening of Oils

Fatty oils are hardened by a new isomerization process with liquid sulfur dioxide at 110-15°C. Liquid fractions with high iodine value may easily be isolated from the hardened or semi-hardened products. Melting points of the solid fraction are increased over that of the original oil. Polymerized oils and activated oils can be produced by the treatment. H. I. Waterman, C. van Vlodrop, and J. Hannewyk, *Research* 1, 183-5 (1948).

Special Soap

Equal parts by weight of dry calcium carbonate, soda ash, and oleate soap are mixed and dissolved in water, after which 0.5 per cent of aluminum acetate is added, based on the solids content. Societe des etablissements ager, French patent No. 860,927.

Mixed Soap Bar

Bar soap containing a combination of soap and synthetic detergent is made in ordinary milling and plodding machinery, to produce satiny cakes. Starch is also added; for example use 15-55 parts of tallow soap,

20-30 parts of corn starch, and 20-60 parts of synthetic detergent derived from petroleum, such as "Nacconol" or MP189." The moisture content should not be over six to 15 per cent. L. F. Hoyt, to Allied Chemical & Dye Corp. U. S. Patent No. 2,438,169.

"Lamepon" Based Shampoo

A shampoo based on "Lamepon" has increased foaming and cleansing power by addition of 10 per cent of sodium hexametaphosphate, based on the "Lamepon" content. C. R. Theiler, Swiss Patent No. 218, 765.

Stearic Acid

Commercial stearic acid is purified by recrystallization from three to five times its weight of an aliphatic ketone of four to nine carbon atoms, preferably methyl ethyl ketone. D. E. Adelson, to Shell Development Co. U. S. Patent No. 2,443,063.

Fat Splitting

A comparison was made of splitting fats in an autoclave with the use of zinc dust, zinc dust plus zinc oxide, and zinc oxide alone. Although the difference in color of the split fatty acids was not great, the color was brightest with zinc dust, darker with the mixture, and darkest with zinc oxide alone. A yield of 88 per cent of fatty acids from palm kernel oil was obtained with zinc oxide, 84 per cent with the mixture, and 75 per cent with zinc dust. Use of zinc oxide is therefore recommended. J. Hetzer, *Seifen, Ole, Fette, Wachse* 74 172-3 (1948).

German Washing Powders

Alkyl sulfonates have been used extensively in Germany as the active detergent agent in washing powders. An example of compounding such powders is the following:

Alkyl sulfonate	10
(Mersolate)	
Waterglass	4
Tylose HBR	4.5

(carboxy methyl cellulose)

Soda ash	45
Sodium sulfate	5
Water to	100

In some products fatty acids were mixed with "Mersol" acids. H. Manneck, *Seifen, Ole, Fette, Wachse* 74, 148-150 (1948).

Novel Hand Cleaner

Catalyzed polymerization of vinyl compounds has produced linear polymers of considerable technical importance, including poly-vinyl alcohol which has the general formula (CH₂CHOH)_n. This alcohol yields a novel type of cleansing agent. Two or three ml. of a 10 per cent solution are rubbed over the hands and allowed to dry until sticky. This film is then rubbed vigorously, causing the film to rub off the hands and to take the dirt with it.

The material has found a place in the manufacture of liquid soaps, since addition of small amounts of the alcohol to synthetic detergent solutions give these a soap-like appearance. Stabilization of detergent foams and even the foam of beer has been effected. In pure form the alcohol is not toxic when administered by any route to animals or man. S. L. Collier, *Soap, Perfumery, Cosmetics* 21, 690-1 (1948).

Fatty Acid Separation

Saturated and unsaturated fatty acids can be separated by extraction with 80 per cent alcohol at —10 to —15°C. Filtration followed by careful washing, a second cooling of the filtrate and another filtration, give saturated fatty acids on the filter and unsaturated acids in the filtrate. S. R. Alpar, *Rev. faculte sci univ. Istanbul* 13 A, 30-40 (1948).

Castor-oil Soap

The principal glyceride of castor oil is that of ricinoleic acid, but the oil also contains stearin, palmitin, and dihydroxy stearin. Soap made with it is transparent or white and quite hard. The soap dissolves in cold water without turbidity, and gives a quick lather. Castor-oil soap is very soluble. M. A. Saboor, *Indian Soap J.* 13, 281-90 (1948).

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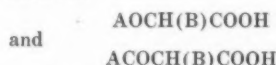
No. 2, 446,505, Method of inhibiting the growth of mold, patented August 3, 1948 by Simon Weil Arenson, Baltimore, Md., assignor to Doughnut Corporation of America, New York, N.Y., a corporation of New York. The method of inhibiting the growth of mold is covered which comprises applying to the locus of infection an esterification product of a member selected from the group consisting of propylene glycol and dipropylene glycol with the straight chain, saturated monocarboxylic acid of the group from two to 10 carbon atoms.

No. 2,446,793, Substituted pyridinium and piperidinium compounds, patented August 10, 1948 by Robert S. Shelton, Mariemont, and Marcus G. Van Campen, Jr., Wyoming, Ohio, assignors to the Wm. S. Merrell Company, Cincinnati, Ohio a corporation of Delaware. A germ counteracting composition is patented which comprises, as the essential germ counter-acting ingredient thereof, a heterocyclic quaternary ammonium compound in which the heterocyclic nucleus is a six-membered ring of five carbon atoms and the ammonium nitrogen atom, the ammonium atom having thereon an aliphatic radical of three carbon atoms, and an aliphatic radical having thirteen carbon atoms, being attached to a carbon atom of said nucleus, said quaternary ammonium compound being present in said composition to the extent of between 0.1 and 0.5% by weight.

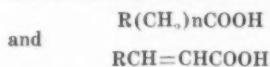
No. 2,446,796, Substituted Pyridinium and Piperidinium Compounds, patented August 10, 1948 by Marcus G. Van Campen Jr., Wyoming, and Robert S. Shelton, Mariemont, Ohio, assignors to the Wm. S. Merrell Company, Cincinnati, Ohio, a corporation of Delaware. A germ-counteracting composition is covered which comprises as the essential germ-counteracting ingredient thereof a heterocyclic quaternary ammonium

compound in which the heterocyclic nucleus is a six-membered ring of five carbon atoms and the ammonium nitrogen atom, said ammonium nitrogen and one of the carbon atoms of the nucleus each having attached thereto an aliphatic radical of at least seven and less than eleven carbon atoms, the sum of the carbon atoms of said radicals being at least seventeen and less than twenty, said quaternary ammonium compound being present in said composition to the extent of between 0.1 and 0.5 percent by weight.

No. 2,446,836, Herbicides, patented August 10, 1948 by Gladys S. King, Metairie, La., assignor to James M. Fountain, Bryan, Tex. A herbicide is patented comprising a combination of two basic ingredients, the first of said ingredients being aryl substituted monocarboxylic compounds from the group consisting of acids of the formula:



where A is a halogenated aryl radical and B is a radical from the group H, methyl and ethyl; and the esters and salts of said acids, the second of said ingredients being a plant bud growth inhibitor from the group consisting of compounds have the formula:



where R is a radical from the group phenyl, naphthyl and indolyl, and n is an integer from one to four.

No. 2,446,957, Process for producing nicotinamide, patented August 10, 1948 by Hans R. Rosenberg, Wilmington, Del., assignor to E. I. du Pont de Nemours & Company, Wilmington, Del., a corporation of Delaware.

A process for producing nicotinamide which comprises heating 3-cyano-pyridine in the presence of water and an organic amine.

No. 2,447,297, Protection of glass surfaces against alkali attack, patented August 17, 1948 by Walter F. Wegst and Leslie R. Bacon, Wyandotte, and Thomas, H. Vaughn, Grosse Ile, Mich. assignors by mesne assignments, to Wyandotte Chemicals Corporation, Wyandotte, Mich., a corporation of Michigan. A composition for cleaning glass and vitreous ceramic surfaces is covered consisting of 1 to 40 percent by weight of materials selected from the group consisting of sodium carbonate, trisodium phosphate, tetrasodium pyrophosphate and sodium metasilicate calculated to the anhydrous basis, an alkali-soluble zinc compound giving zinc in anionic form by reaction in alkaline solution present in a ZnO equivalent amount of 1.5 to 7.6 percent by weight on the

basis of the total alkali compounds present, and the balance caustic soda.

No. 2,448,405, Xanthone-DDT insecticide, patented August 31, 1948, by James F. Adams, Wilmington, Del., assignor to Allied Chemical & Dye Corporation, a corporation of New York. An insecticidal composition is covered, the essential active ingredients of which are 2,2-bis(parachlorophenyl)-1,1,1-trichloroethane and xanthone.

New F. A. Plant

Operation of the new General Mills Inc., fatty acid plant at Kankakee, Ill., began last month. Facilities at the plant, which is located on the outskirts of Kankakee, include warehouses, laboratories and offices. In addition, there are large storage tanks for raw materials and distillation and fractionation equipment. Arthur P. Berry is manager and Hugh A. Hamilton is technical director. Guy W. LaLone, former supervisor of refineries at the chemical division's Belmont, Ia., soybean processing plant, has been transferred to Kankakee as production superintendent. The plant will have a staff of about 100.

Toni Expands in St. Paul

Toni Co., Chicago, has expanded its St. Paul plant space with the signing of a new lease in the Lindeke Building, 282, E. Fourth St. According to a company spokesman the extra production space was required to keep pace with demand for the company's line of cream shampoo and home permanent wave kits.

Phila. Quartz Names Smith

Philadelphia Quartz Co., Philadelphia recently announced the appointment of Horace F. Smith to its laundry technical sales staff. He is a graduate of Ohio Mechanics Institute, where he completed a two year course in power laundry operation. More recently he underwent a technical training course in the company's chemical laboratory. Mr. Smith will make his headquarters in the company's general offices in Philadelphia.

Coconut Oil Acids

Coconut oil was found to contain small quantities of odd-numbered saturated acids. Undecanoic and tridecanoic acids were identified. H. Nobori, *J. Soc. Chem. Ind. Japan* 45, 141-3; through chem. Abs.

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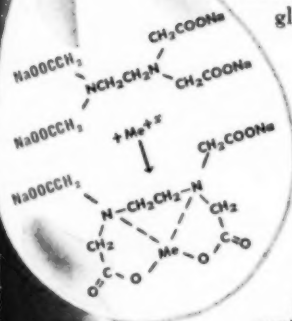
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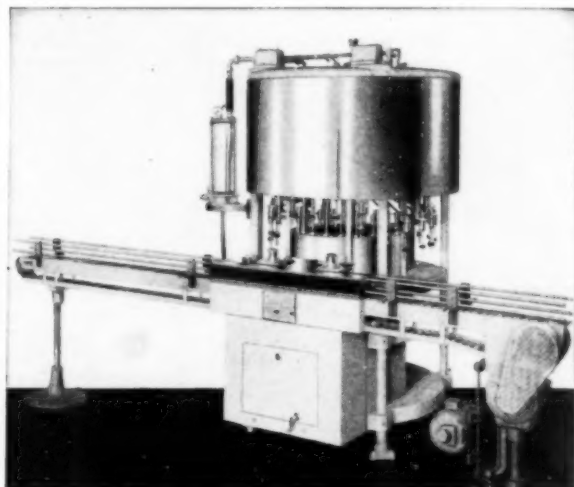
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SOAP PLANT OBSERVER

(From Page 93)

necessary inventories of both oil and soap and (2) the closer control of quality and losses. The two main processes in use in America are the one employed by one major soap company, in which the oil is first split to fatty acids, purified and then saponified; and that used by another in which the oil is first saponified and the resulting soap purified. This last method is known as the "Sharples Centrifugal Soap Process" for the continuous production of soap. It is described in bulletin 1241, recently issued by Sharples Corp., Philadelphia.

The Sharples process has been in development over the past eight years and in practical use on one type of product for about a year in a plant of one of the larger soap companies. The new part of the process consists essentially in the application of centrifuges to the rapid separation of soap and lye to take the place of kettles, with such supplementary equipment

as is necessary to make the process continuous.

There are four distinct stages to the process as follows:

Stage 1—Initial saponification to 98 percent or over (Soap kettle Saponification)

Stage 2—Completion of the saponification. (Corresponding to kettle 1st, 2nd and 3rd wash.)

Stage 3—Preconditioning for the fit. (Corresponding to the soap kettle strong change)

Stage 4—Fitting to Neat Soap (Corresponding to the soap kettle finish).

The equipment for each stage is essentially the same and consists of (1) A feed or wait tank; (2) pump; (3) A mixing device, which for the first stage or saponification step, is a vertical type—the other stages having horizontal, multi-compartment mixers; (4) No. 16 Sharples super-centrifuge especially engineered for soap work and producing a centrifugal force of 13,200 times the force of gravity; (5) tanks for stages 2, 3 and 4—the first stage requiring no reagent tank since the lye from this stage proceeds

direct to glycerin recovery processes; and (6) a flow control device between feed tanks and mixer outlets, a flow control device between reagent tank and pump outlet.

In addition to the above equipment duplicated in each stage the following accessory parts are needed: Supply tanks for fats, caustic soda, brine and water; supply pumps for each of the above stocks, as well as a supply pump for soap scrap returned to the process. Fat, brine and water pass through heat exchangers on their way to the supply tanks. Proportioning pumps for the metering of fat, caustic and soap scrap returns to the 1st Stage feed tank. Two proportioning pumps from the brine tank and caustic tank to the third and fourth reagent tanks. Finally one proportioning pump from the water tank to the fourth stage reagent tank.

To follow the process through; fat, caustic brine; lye from the second stage; and soap scrap pass into the 1st stage feed tank, hence through a control valve to a feed pump and into a vertical mixer. The caustic strength

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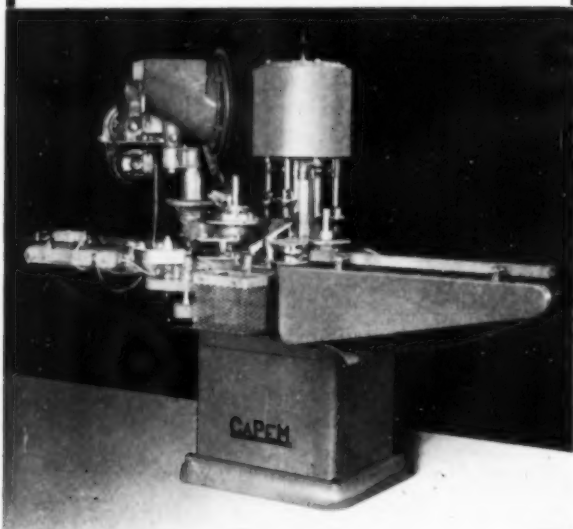
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at this point is so adjusted that only approximately 98 percent saponification takes place. This is to insure a low alkali content of the lye at 0.1 percent or less. The mixture then passes to the bottom of the centrifuge, up through the rotating element, where separation into soap and lye takes place, and is discharged into separate covers which flow off by gravity. The lye passes to glycerine recovery. The soap passes to Stage 2.

The feed tank for the 2nd stage is charged with soap from the first, plus reagent from reagent tank 2 which consists of lye from the 3rd Stage. It is to be noted that all lyes flow counter current to the soap. The mixture passes through control valve to feed pump to horizontal mixer and hence to the 2nd stage centrifuge where it is separated into soap and lye. The lye is sufficiently alkaline to complete the saponification. The lye passes by gravity directly to the feed tank of No. 1 stage. The soap passes to Stage 3.

The feed tank of Stage 3 is

charged with soap from Stage 2 plus reagent from the 3rd Stage Reagent tank. Since this is a preconditioning stage for the "fit" or "finish" it consists not only of the lye from the 4th stage but also fresh brine and caustic. The passage through control valve, pump, mixer and centrifuge is the same as previously given. The lye passes by gravity to Reagent tank 2 and the soap by gravity to the Feed Tank of Stage 4.

This last step, or Stage 4, finishes the soap. The feed tank is charged with soap from Stage 3 plus reagent from Reagent tank 4. Since there is no lye from another stage here, the reagent consists entirely of fresh make-up from the caustic, brine and water supply tanks. The soap passes through the system exactly as for the other stages and is separated at the centrifuge into finished neat soap plus lye which passes to Reagent Tank 3.

In each stage, the flow of reagent into the feed tank and the flow from the feed tank is regulated by

automatic weighing mechanisms consisting of a weight tank, scale, pneumatic control and air actuated diaphragm valve. These regulators are interlocking so that the ratios between stages remains constant even if the total flow of raw materials to the system is increased or decreased. The interlocking applies also to the proportioning pumps handling the raw materials. In addition each may also be varied as occasion demands by a handwheel adjustment.

Chemical control consists in the periodic testing of the lye at one point in the system and the modification of the fat-caustic balance if necessary by the adjustment of one caustic proportioning pump. The neat soap and lye are checked less frequently for free alkali, salt content, etc. It is claimed that there is no nigre, this being separated with the lye in the fourth stage and returned to the process. Just how this is done is not made clear as it is not shown further on the flow sheet or diagrammatic layout of the plant as supplied in the

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bulletin. Possibly it is done by regulation of the centrifuge in this last stage.

Sharples has nine sizes of plants available. Chiefly, production capacity is increased by adding extra centrifuges with such other changes as are necessary for volume capacity. The sizes with added monthly output of soap on a 24-hr. day five day week schedule are as follows:

Size	Fat Processed Lbs. per hour	Monthly soap output	
		120 nr-wt. 95.63%	P.A. in short tons.
1	1,500	585	
2	3,000	1,170	
3	4,500	1,755	
4	6,000	2,340	
5	7,500	2,925	
6	9,000	3,510	
7	10,500	4,100	
8	12,000	4,680	
9	13,500	5,260	

General manufacturing characteristics given are as follows: A lye ratio of 0.5 to 0.7 lbs. of lye per lb. of fat to yield a neat soap containing 0.35 percent glycerine. A lye with 0.1 percent or less free alkali eight to 12 percent salt. A two hour period or less from entrance of fat to production of finished soap. An electric consumption of approximately 0.022 KWH per lb. of fat processed for the No. 1 size plant to 0.010 KWH for the larger plants. Steam requirements are 0.17 lb. of steam at a minimum

pressure of 40 psi. Compressed air for operation of controls, from 1.2 cu. ft. of free air per lb. of fat processed for the small size plant to 0.4 cu. ft. for the largest. Building space varies from 25 feet x 35 feet x 33 feet for plant No. 1 to 40 feet by 50 feet x 45 feet for plant No. 6.

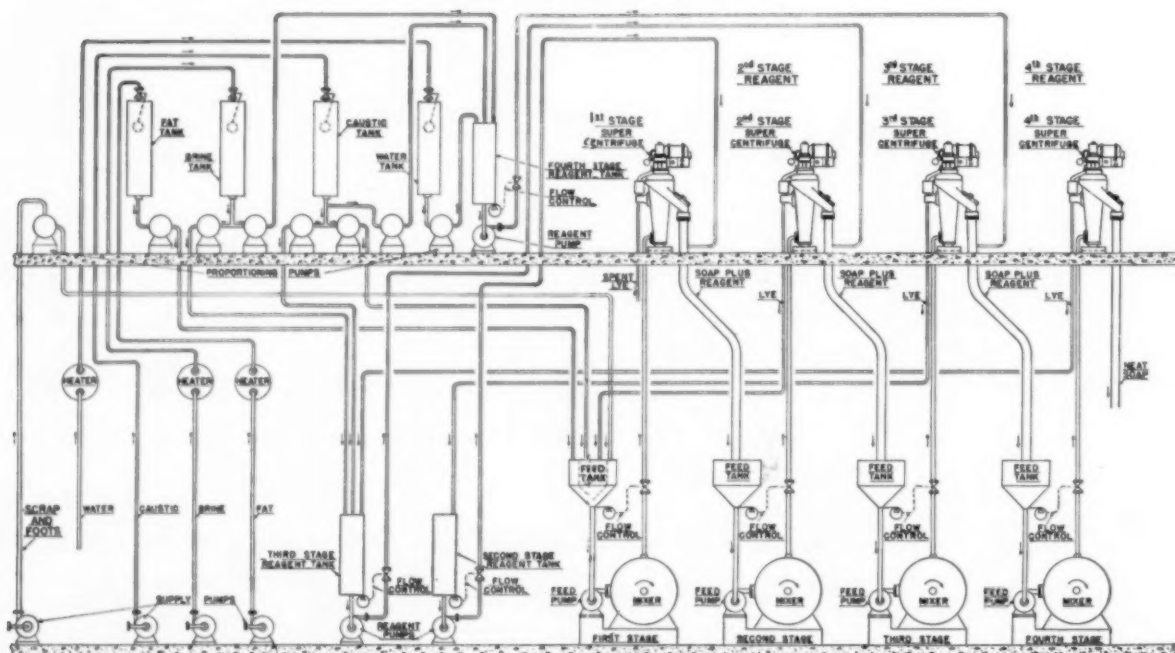
The writer has observed this type plant in operation and was greatly impressed by the ingenuity displayed in coordinating the units into a single operation and by the adaptation of centrifuges to remove the time element in ordinary soap boiling. The system is sensitive however to slight variations. If a control valve does stick and proportion wrong, the system is put out of balance and shuts down the entire process until the balance is restored in all four stages. Although operating data is missing from the bulletin, a few theoretical considerations may make this point clearer. The soap mixture passing each stage must be the same. Concerning the counterflow lyes—Stages 2 & 3 lye flow will be equivalent since the lye from 3 is used in 2 without change. The lye flow from 3 may or may not be equal to that from 4 depending on the proportion of brine and caustic that is split between them. However,

the flow from 3 will be equivalent to the total brine water and caustic added in both 3 & 4. Flow from 1 will be equivalent to the flow from 2 plus the water equivalent in the caustic added. Since total caustic between stages 1, 3 & 4 must balance the fat, it is seen that any change however must result in a change of lye flow in all four stages. Like all processes dependent on automatic controls, therefore, operation is simple until some minor mechanical defect occurs and then it requires a skilled mechanic to correct the fault.

Although considerable flexibility of operation is noted, it would not appear well suited to fit the needs of a medium small soaper whose production is split among three or four brands. Such change over would involve a certain shut down-clean out period plus resetting of controls. This might not be a serious problem. The matter of handling rosin soaps is not mentioned, nor the handling of foots. This last might be a considerable problem due to the high water solubility of the hydroxy acids with accompanying foam value in the lyes. Of more significance is the lack of any way of closing the soap during the process. No doubt this would involve great complications, but in its absence, it

(Turn to Page 181)

Diagram of Sharples Centrifugal Soap Process



SANITARY PRODUCTS

A SECTION OF SOAP

NAMING new insecticide, fungicide, herbicide and similar chemicals with which the Bureau of Entomology & Plant Quarantine of USDA has been struggling for the past year or two, becomes a harder nut to crack with each passing day. The Bureau has long realized that there is great confusion in the public mind as far as insecticide, fungicide, and like names are concerned. Its efforts to clarify common designations to avoid this admitted confusion have run into one knotty problem after another. What appeared to be a more or less routine task two years ago has become a constantly more complicated puzzle which has all the earmarks of defying solution.

That a system of nomenclature for common designations must be found if public confusion is to be ended, the Bureau is well aware. That present designations such as DDT, 2,4-D, BHC, and the like invite confusion and misuse has been confirmed by experience. When the Bureau came out with the name Chlordane, the industry figured this was the first of a whole series which would soon be announced. But, complications arose. Conflict with numerous chemical prefixes and suffixes were noted. Weed killers, insecticides, et al, must not end in *ate*, *ide*, *ite*, *ous*, or other chemical suffixes with a definite meaning. If so even greater confusion might result. The chemists objected to about every name which the entomologists proposed. And so it went from complication to complication.

Right now, it looks like this is really a big problem, a job for a combined committee on nomenclature working under the direction of the Bureau, a committee of entomologists, plant pathologists, chemists, starting all over from scratch. And it is a job whose importance is much greater than first casual observations might indicate. With numerous new chemicals already

in actual use and others expected soon to become commercial realities, confusion will only become greater as time goes on. The Bureau has the full confidence of industry and we know will receive every cooperation in its efforts to solve the problem.

IF insecticide manufacturers and state and federal government officials are concerned over one thing more than another right now, it is the suspicion that some insects, notably flies, may built up a resistance to DDT through succeeding generations. The fear that because of this tendency, DDT might eventually lose much of its usefulness as an insecticide both for agricultural and household purposes is enough to cause consternation in many quarters. Results of recent research along this line, as well as reports from commercial users, indicate that this may be more than mere suspicion. Extension of the investigation to bedbugs, against which DDT even in very low dilutions has thus far been highly effective, and to some of the more common agricultural insect pests is reported pending.

In the changing complexion of the insecticide industry over the past ten years, every conceivable advantage and shortcoming of the newer chemical products have been weighed. Greatest consideration in the case of DDT, as well as other chemical insecticides, was shown for the possibilities of toxicity to warm blooded animals. That the insects might build up a resistance received little thought. And if such actually is the case with DDT, will similar experiences come with other chemical insecticides as time goes on? Are increased dosages the answer? To what point? Will we eventually come to insecticide rotation? All interesting questions to which the answers are very significant.

Introduction

THE increased production and use of quaternary ammonium compounds has augmented the need for inhibitors to inactivate the germicidal action of these compounds. There is a demand for inhibitors to be used in the evaluation of these germicides and also to be included in the buffered water employed for making swab-rinse plate counts of food utensils which may have been sanitized with quaternaries.

Quaternary ammonium compounds are cationic and are rather readily inactivated by anionic compounds in proper proportion. The use of anions has been relied upon by some investigators for inactivation of quaternaries, particularly in testing procedures. Our recent studies (1) have shown that while certain anions, particularly anionic detergents, are effective for arresting germicidal action, they are also quite bacteriostatic in the higher concentrations which would normally be required for inactivation of cations under certain practical conditions. Because of this bacteriostatic factor, these anionic compounds cannot be relied upon for inhibition. In a testing procedure for evaluating the germicidal efficiency of quaternary ammonium salts, it would appear hazardous to employ bacteriostatic anions as inhibitors because these anions may well exert sufficient bacteriostatic action to prevent colony formation by viable cells surviving disinfection, thus indicating a false value for an inferior disinfectant.

Earlier studies (1) which we made showed that naphuride sodium (2)* and lecithin (3, 4) (Asolectin" in Tween 80") appeared to be more effective than other compounds tested for inhibiting the germicidal action of quaternary ammonium compounds when employing a pure culture of *Escherichia coli* as a test organism. Those studies, however, indicated that naphuride sodium and lecithin were not effective in low concentration for protecting certain other types of bacteria which were isolated from food utensils. Because of this fact, investigations were continued in order to

learn the effectiveness of these two inhibitors against a variety of test organisms.

Procedure

FOR these studies several types of procedures were employed. In the preliminary work, swabbings from food utensils were introduced into sterile swab vials. This was followed by addition of the inhibitors to be tested and subsequently by the introduction of appropriate concentrations of quaternaries. After definite exposure periods at room temperature or

from food utensils. In some instances, food utensil swabbings containing mixed cultures were used. In some early experiments swab vials were employed for containing the suspension of test organism, inhibitors and quaternaries. Later, however, larger volumes were used and test tubes were employed for this purpose. Reacting solutions were generally buffered to pH 7.2 employing M/320 phosphate buffer.

Results

Mixed Cultures from Food Utensils: In order to determine the

Relative Efficiency of QUATERNARY INHIBITORS**

at 25°C., one milliliter portions were removed and plated. Plates were generally poured with tryptone glucose extract (TGE) agar (5) (without added milk), or TGE agar to which an inhibitor (lecithin) had been added.

In later experiments this procedure was modified by adding the inhibitor after introduction of the quaternary in such a manner as to arrest germicidal action already in progress. It was possible to do this only with low concentrations of germicides, since with high concentrations the organisms might be killed before the addition of the inhibitor.

In some experiments, graduated concentrations of quaternaries were added to 10 ml. tubes of TGE agar. Following this, the melted and cooled agar was poured into plates in which the test cultures had previously been introduced.

A variety of test organisms was employed, of which some were isolated

efficiency of the better inhibitors such as lecithin and naphuride sodium with a variety of test organisms, swabbings made from a series of dishes were pooled and added to swab vials containing buffered inhibitor. A quaternary ammonium compound was then added and following this, platings were made with standard TGE agar. Using 200 p.p.m. of quaternary with about twenty times this concentration of inhibitor, which was shown to be effective in previous work (1) employing *Escherichia coli*, colony counts showed great reduction when compared to control plates containing no quaternary. Generally it appeared that the bacteria surviving included no Gram positive cocci.

Cultures of organisms were isolated from dish swabbings for further study. Stock cultures of bacteria together with cultures isolated from food utensils were employed in several series of tests.

Limits of inhibition by Agar: After it was observed that TGE agar was not completely inhibitory for quaternary ammonium compounds, in

* Also known as "Bayer 205," "Germanin" and "Sodium Suramine."

** Presented at 48th General Meeting of the Society of American Bacteriologists, Minneapolis, Minnesota, May 11-14, 1948, as paper entitled "Relative Efficiency of Inhibitors for Quaternary Ammonium Compounds Using Various Test Organisms."

that bacteriostatic action was evident for certain types of test bacteria, studies were continued to determine just how large a concentration of quaternary could be added to 10 ml. of standard TGE agar in a petri dish and develop no bacteriostasis for even the more sensitive of test organisms. For this study, the test organism was suspended in phosphate buffer (pH 7.2) and one ml. of this suspension containing about 100 bacteria per ml. was placed in a petri dish. To this was added 10 ml. of standard TGE agar to which had been added a stipulated

dish but not in .01 mg. Since this organism was the most sensitive to quaternary bacteriostatic action of all cultures tested, it was employed for a number of additional studies to establish definite limits of bacteriostatic action.

Because lecithin was observed to have definite inhibitory properties for bacteriostatic action, certain media which it was believed might contain lecithin or related compounds which would be effective in neutralizing quaternaries, were studied. Brain veal agar and heart infusion agar were employed in these studies. Results indicate that they are of approximately the same value as standard TGE agar for quaternary inactivation.

Employing standard TGE agar it was not possible to eliminate all bacteriostatic action of a quaternary against this same test organism with naphuride sodium in a ratio of 10,000/1, whereas a ratio of 100,000/1 was effective.

Use of lecithin agar: In the previously reported experiments employing 200 p.p.m. of quaternary, one ml. of this solution transferred to a petri dish contained 0.2 mg. quaternary. Inspection of Table 1 will show that standard TGE agar was not adequate for completely inhibiting the bacteriostatic action of quaternaries. The most sensitive organism studied (399-2) was capable of growing in the presence of .001 mg. or perhaps slightly greater concentrations but not in .01 mg. quaternary per petri dish poured with 10 ml. of standard TGE agar. The introduction into a petri dish of one ml. of a one p.p.m. quaternary solution would supply .001 mg. A survival-curve experiment employing this test organism in a two p.p.m. quaternary was carried out and plated in duplicate with standard TGE agar and lecithin TGE agar containing sufficient lecithin to give two mg. per plate. Since only .002 mg. of quaternary was added to each plate, the ratio of lecithin to quaternary within the plate was 1000/1. Plate counts were four to 10 times higher in every instance when poured with lecithin TGE agar than when poured with standard TGE agar, indicating some bacterio-

stasis with the standard TGE agar.

A similar experiment was repeated employing five p.p.m. of quaternary instead of two p.p.m., and maintaining the 1000/1 ratio of lecithin to quaternary in the petri dish, and this appeared to eliminate bacteriostasis.

In order to maintain such high ratios of inhibitor to quaternary using lecithin, with which there are definite physical limits of solubility, it was necessary to employ lower concentrations of quaternary ammonium compounds. Concentrations in the range of .01 mg. per petri dish were employed. For these low concentrations of germicides it was observed that protection was afforded, but when the concentration of germicide was increased, with a constant amount of inhibitor, there was a definite reduction in plate count, indicating either bacteriostatic or bactericidal action.

Interception of Survival Curves: A survival curve employing the same conditions as previously described for two p.p.m. of quaternary was intercepted after five minutes' exposure (25°C.) with 2000 p.p.m. of lecithin, maintaining a ratio of lecithin to quaternary of 1000/1 in the reacting solution. This was plated in a TGE agar medium containing lecithin sufficient to give an additional 1000/1 ratio in the plate. Colony counts were reasonably constant up to 300 minutes with an increase at 24 hours, indicating that all germicidal and bacteriostatic action had been eliminated. A control survival curve in which no lecithin was added after five minutes to arrest the germicidal action, showed that the test organism (399-2) was killed in an exposure period somewhere between 60 and 120 minutes.

Naphuride sodium employed in a similar experiment to intercept a survival curve (in a ratio of 1000/1 of inhibitor to quaternary) plated in lecithin TGE agar as described previously, was not completely effective in arresting germicidal action. The colony count gradually dropped, reaching zero some time between 24 and 72 hours.

Similar interception of a survival curve to arrest killing was demonstrated employing five p.p.m.

**By George R. Weibert††
and Luther A. Black†**
U. S. Public Health Service
Cincinnati

amount of quaternary ammonium compound. The quaternary was added while the agar was hot (at least 80°C.) to insure complete mixing. However, it was, of course, cooled before pouring plates.

Table 1 shows results of this study employing several test organisms with graduated quantities of quaternary added to each plate. It will be observed that *Escherichia coli* (stock culture) and strain 399-1 (isolated from food utensils) both Gram negative, non-sporulating rods, are capable of reproducing in concentrations of quaternary of one mg. but not 10 mg. per petri dish. *Staphylococcus aureus* and *Micrococcus caseolyticus** formed colonies in the presence of .01 mg. quaternary but not with 0.1 mg. However, strain 399-2 (a sarcina isolated from food utensils) reproduced in .001 mg. per 10 ml. of TGE agar per petri

* Secured through the courtesy of Dr. W. L. Mallman, Michigan State College.

†† S. A. Scientist and

† Principal Bacteriologist, Milk and Food Sanitation Laboratory, Water and Sanitation Investigations, United States Public Health Service, Cincinnati.

quaternary intercepted with 5000 p.p.m. of lecithin after 45 seconds' exposure. Counts remained constant even after 24 hours' exposure, whereas with a control experiment, which was not intercepted with lecithin, the colony count was reduced to zero some time between two and five minutes. This would indicate that under these conditions lecithin may be added after the quaternary has started to kill and further germicidal action prevented, a phenomenon which has been reported to be not possible. (3)

Factors limiting use of lecithin:

Following the observation that lecithin in the agar medium was effective for preventing bacteriostatic action with low concentrations of quaternaries, an attempt was made to build up the lecithin concentration sufficiently high to protect sensitive test organisms against higher concentrations of quaternaries. Due to the physical properties of lecithin (Asolectin* in "Tween 80"**) definite limits of possible concentrations of this inhibitor in agar were reached. When higher concentrations of lecithin in "Tween 80" were added to agar, the agar became "oily" in nature due to the spreading agent "Tween 80," and was not satisfactory as a plating medium. However, without such a spreading agent, lecithin would be quite difficult to incorporate into a medium and indications are that without a spreading agent, lecithin would be less effective or ineffective as an inhibitor.

With a given concentration of lecithin, it appears that it is more effective for quaternary inhibition in a fluid, e.g. in a dilution blank, than in an agar medium. Also, higher concentrations of lecithin may be incorporated in a fluid than in an agar where physical properties may be altered, although one gram of lecithin in seven ml. of "Tween 80" per liter of agar was satisfactorily incorporated.

The pH of the agar must be carefully adjusted to near neutrality after the addition of lecithin; indications are that at pH 6.6 this medium is not completely effective, whereas at pH 7.0 it was satisfactory.

* "Asolectin" from: Associated Concentrates, Inc., Atlanta 1, Ga.

** "Tween 80" from: Atlas Powder Co., Wilmington, Delaware.

TABLE I

INHIBITION OF COLONY FORMATION DUE TO GRADED CONCENTRATIONS OF QUATERNARY AMMONIUM COMPOUND IN AGAR USING VARIOUS TEST ORGANISMS

Results reported as colonies per petri dish following incubation at 37°C. for 48-72 hours.

Organism	0	Milligrams of Q.A.C.* per petri dish					
		0.001	0.0001	0.01	0.1	1.0	10.0
<i>Escherichia coli</i>	213	—	200	219	212	202	0
Gram negative rod	484	521	450	451	490	158	0
(399-1)							
<i>Staphylococcus aureus</i>	97	74	101	106	0	0	—
<i>Micrococcus caseolyticus</i>	94	98	118	40	0	0	—
<i>Sarcina</i>	169	161	152	0	0	0	—
(399-2)							

* Alkyl Dimethyl Benzyl Ammonium Chloride. Almost identical results were observed with the same concentrations of Di-isobutyl Phenoxy Ethoxy Ethyl Dimethyl Benzyl Ammonium Chloride.

Relative Efficiency of Inhibitors; Standard TGE vs. Lecithin TGE Agar: Following some earlier work in which it was observed that low ratios of inhibitors (lecithin or naphuride sodium) to quaternaries were not effective whereas higher ratios were effective (at least in some instances) for inactivating quaternaries, studies were made to determine more definitely just what ratio of inhibitor to quaternary would be necessary. For this work the more sensitive Gram positive cocci were employed. The inhibitor was contained in nine ml. of buffered (pH 7.2) phosphate water in a test tube. To this was added 0.5 ml. of a buffered suspension of the test organism followed by the addition of 0.5 ml. of the stipulated concentration of quaternary. A temperature of 25°C. was maintained by holding tubes in an incubator. Aliquots were removed for plating in standard TGE agar as well as lecithin TGE agar (one gram of lecithin and seven ml. "Tween 80" per liter of agar), immediately (i.e. within 10 minutes), and after one, five and 24 hours.

Table 2 shows that in a number of instances, naphuride sodium was adequate for inhibiting or delaying germicidal action for some time but was not adequate for preventing bacteriostatic action. Platings made after 0-10 minutes, and one hour, for example, clearly show that when poured with standard TGE agar, no colonies developed, whereas when the very same suspension was poured with lecithin

TGE agar, colony counts comparable to control plates were obtained.

Similar results may be observed in tables 3 and 4, using other test organisms. These results indicate that with naphuride sodium, the cells were viable but failed to reproduce unless a substance capable of eliminating the bacteriostatic action of the quaternary was added. The implications of this phenomenon in evaluation of the germicidal efficiency of quaternaries, where naphuride sodium or another inadequate inhibitor is employed, should be evident. A quaternary compound might easily be assumed to be germicidal in the period of exposure permitted, whereas actually viable cells may be present.

The concentrations of inhibitor employed here (200 mg. in 10 ml.) represent a concentration that is about the physical limit for lecithin in "Tween 80." Naphuride sodium is quite soluble and could be increased although it is doubtful if it would be practicable. Studies reported above have already indicated that extremely high ratios of inhibitor to quaternary were required when the plating medium was standard TGE agar.

It will be noted that cultures of *Staphylococcus aureus* and *Micrococcus caseolyticus* showed definite reductions in plate counts after periods of from one to five hours in buffered dilution water and also in buffered dilution water containing naphuride sodium. With the buffered water containing lecithin, however, colony

TABLE II
RELATIVE EFFICIENCY OF INHIBITORS FOR QUATERNARIES AS INDICATED BY
EXPOSURE OF STAPHYLOCOCCUS AUREUS FOR SPECIFIED TIMES IN 10 ML. OF
BUFFERED (pH 7.2) WATER

Results reported as colony counts per petri dish comparing platings with Standard
TGE and Lecithin TGE agar; 37°C.; 48-72 hours.

Inhibitor Milligrams		200	Lecithin ¹					Naphuride Sodium				None				
		200	200	200	200	200	200	200	200	200	200	0	0	0	0	0
Quaternary ² Milligrams		0	0.2	0.4	0.8	2.0	0	0.2	0.4	0.8	2.0	0	0.2	0.4	0.8	2.0
Ratio	Inhibitor	1000	500	250	100			1000	500	250	100					
	Quaternary	1	1	1	1			1	1	1	1					
Exposure Time 25°C.	Plating Medium															
0-10 Minutes	TGE ³	115	99	108	88	101	76	97	24	0	0	55	0	0	0	0
	Lecithin ⁴	109	113	91	105	96	95	102	93	116	100	99	0	0	0	0
one Hour	TGE	82	105	101	94	91	66	76	15	0	0	4	0	0	0	0
	Lecithin	105	98	117	84	96	73	103	115	99	102	8	0	0	0	0
five Hours	TGE	65	73	110	105	79	0	7	0	0	0	0	0	0	0	0
	Lecithin	123	102	106	131	123	1	14	6	57	87	0	0	0	0	0
24 Hours	TGE	147	107	138	133	80	0	0	0	0	0	0	0	0	0	0
	Lecithin	102	116	108	88	98	0	0	0	0	1	0	0	0	0	0

¹ Lecithin ("Asolectin" in "Tween 80").

² (Quaternary) Alkyl Dimethyl Benzyl Ammonium Chloride.

³ TGE: Standard Tryptone Glucose Extract Agar.

⁴ Lecithin TGE Agar: One gram lecithin per liter TGE agar.

counts remained relatively constant for periods up to about 24 hours under these conditions. Some stimulating action of lecithin has been noted in previous work (1) where *Escherichia coli* was employed as a test organism when held at room temperature but

none was observed when held at refrigeration temperature (5°C.).

Discussion

It appears that different test organisms have different threshold concentrations of quaternaries in the pres-

ence of which they can produce colonies in an agar medium. Undoubtedly, the law of mass action comes into play in this reaction of inhibitor with quaternary.

It would appear from the re-
(Turn to Page 151)

TABLE III
RELATIVE EFFICIENCY OF INHIBITORS FOR QUATERNARIES AS INDICATED BY
EXPOSURE OF MICROCOCCUS CASEOLYTICUS FOR SPECIFIED TIMES IN 10 ML. OF
BUFFERED (pH 7.2) WATER

Results reported as colony counts per petri dish comparing platings with Standard
TGE and Lecithin TGE agar; 37°C.; 48-72 hours.

Inhibitor Milligrams		200	200	Lecithin ¹		200	200	200	200	Naphuride Sodium		200	200	None		
Quaternary ² Milligrams		0	0.2	0.4	0.8	2.0	0	0.2	0.4	0.8	2.0	0	0.2	0.4	0.8	2.0
Ratio	Inhibitor	1000	500	250	100	1000	500	250	100							
	Quaternary	1	1	1	1	1	1	1	1	1						
Exposure Time 25°C.	Plating Medium															
0-10 Minutes	TGE ³	118	130	115	98	91	90	LA*	0	0	0	53	0	0	0	0
	Lecithin ⁴	110	107	96	100	112	100	82	107	85	109	47	0	0	0	0
one Hour	TGE	88	120	102	96	110	78	25	0	0	0	5	0	0	0	0
	Lecithin	109	133	93	115	89	72	71	89	80	87	10	0	0	0	0
five Hours	TGE	130	126	99	92	96	43	0	0	0	0	0	0	0	0	0
	Lecithin	84	102	108	112	83	42	4	32	3	16	0	0	0	0	0
24 Hours	TGE	104	94	106	97	103	0	0	0	0	0	0	0	0	0	0
	Lecithin	98	113	102	111	99	1	0	0	0	0	0	0	0	0	0

* LA=Laboratory Accident

¹ Lecithin ("Asolectin" in "Tween 80").

² (Quaternary) Alkyl Dimethyl Benzyl Ammonium Chloride.

³ TGE: Standard Tryptone Glucose Extract Agar.

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A Simplified Technique for Rearing Carpet Beetles

By Hamilton Laudani

Bureau of Entomology and Plant Quarantine
U.S.D.A.

TWO of the most time-consuming operations in rearing carpet beetles on a large scale are the separating of the adults to begin new cultures and the sorting of the larvae either for a change of media or for actual use in tests. A laboratory maintaining large numbers of carpet beetle cultures must have an efficient rearing technique which is simple and rapid.

Fletcher (1) recommends collecting the pupae out of the media to start new cultures of known age. This procedure requires considerable time and necessitates the repeated collecting from a single culture, since all larvae do not pupate simultaneously.

Separation of Adults

ONE technique described in this paper is concerned with the separation of the adults, and not the pupae, from the cultures. As soon as the adults begin to emerge, quart Mason jars containing the cultures are placed horizontally in the dark interior of a cabinet through a hinged door in the rear (Fig. 1, R), so that the mouths of the jars fit into the openings in the front of the cabinet (Fig. 1, P). An empty jar is then attached to each culture jar by means of a screw-on assembly made of two open-center metal jar lids, the tops of which have been soldered to a narrow band of 50-mesh screen (Fig. 1, Q). Freshly emerged beetles, being positively phototropic, collect in the empty jars, which are always exposed to the light. The adults can be easily collected daily and new cultures started.

The cabinet used by the writer is six inches high, 9½ inches wide, and 50 inches long, and has a capacity of 10 sets of jars.

This technique has been found to work satisfactorily for the black carpet beetle (*Attagenus piceus* Oliv.) the furniture carpet beetle (*Anthrenus vorax* Waterb.), the confused flour

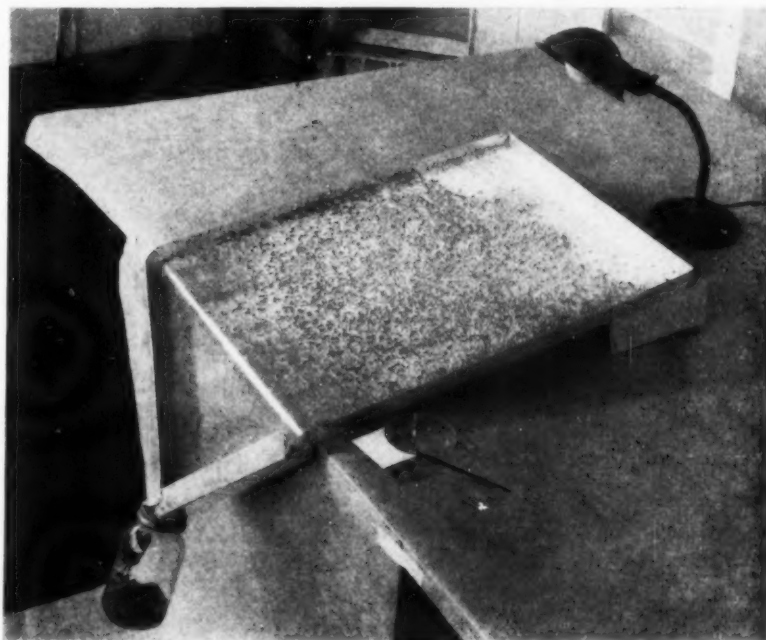
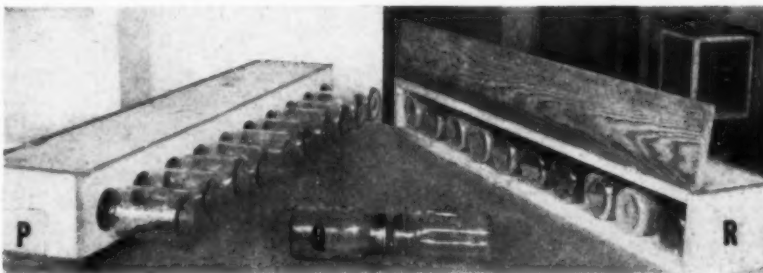
beetle (*Tribolium confusum* Duv.), and the cigarette beetle (*Lasioderma serricorne* F.).

Separation of Larvae

ONCE or twice during the development of a carpet beetle culture, either the medium has to be changed

and the cast skins removed, or larvae must be removed from the medium for use as test insects. Two methods for separating the larvae have been used—(a) rolling the media on rough paper and (b) passing the media through wire screen (Fletcher 1). By the rolling
(Turn to Page 143)

Fig. 1. Apparatus used to collect carpet beetles: (P) Front view showing exposed collecting jars; (Q) coupled jars showing jar-cap-attachment assembly; (R) rear view with door open to show position of culture jars.
Fig. 2. Platform for separating carpet beetle larvae. Petri dish in foreground has cardboard lip attached to aid in collecting larvae of required size.



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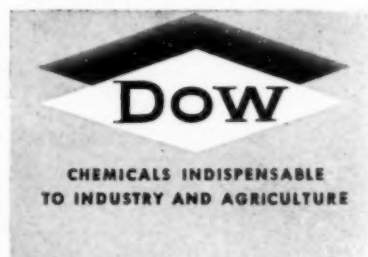
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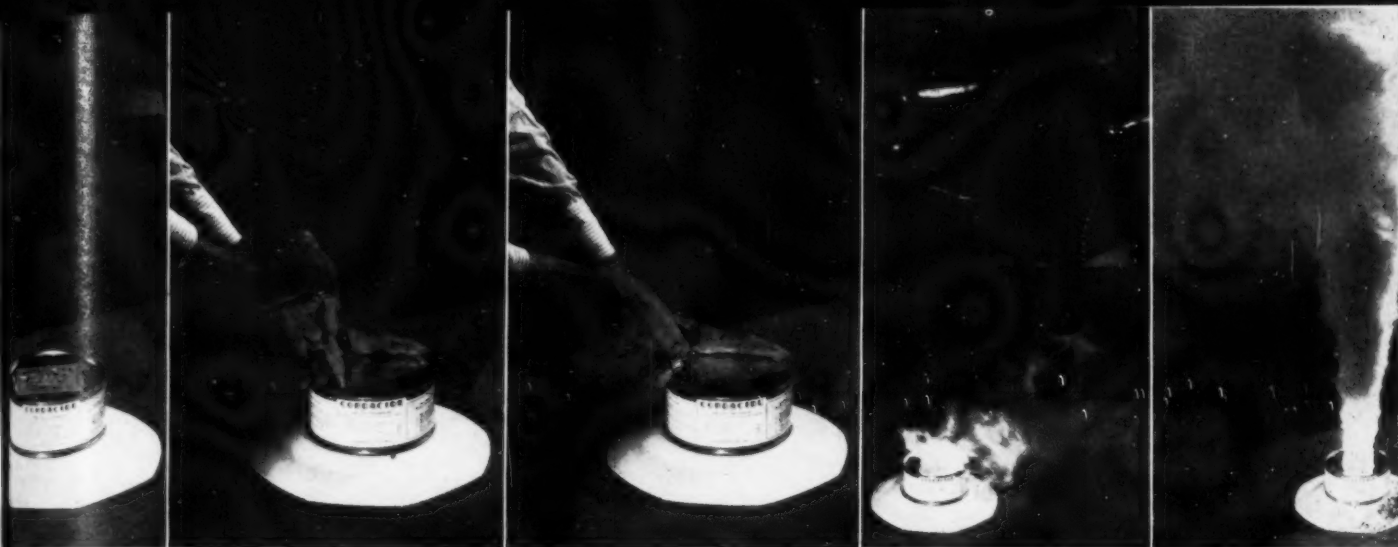
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Smoke Dispensers for Insecticides

By **Harvey L. Sweetman, E. L. Clark and A. I. Bourne**

University of Massachusetts
Amherst

A PATENTED cannister* for dispensing DDT, benzene hexachloride and other insecticides as smoke aerosols has been developed by the Bickford Research Laboratories of Avon, Connecticut. The insecticide is enclosed in a combustible cord, one end of which is attached to an automatic lighter. Each can contains 25 feet of cord. The cord tested is stated to contain not less than 20 percent DDT by weight of the cord and not less than 0.45 grams of DDT per foot. It is further stated that the aerosol particles remain in the air for one to two hours, penetrating cracks and crevices and finally leaving a uniform deposit of DDT on all surfaces. A dosage of one foot of cord per 60 cubic feet for most household insects and one foot per 30 cubic feet for more resistant insects such as carpet beetles is recommended. The cannister used in our tests was made of heavy cardboard with metal ends. The top is perforated to allow smoke containing DDT to escape. A piece of corrugated paper was attached outside the bottom for insulation purposes in an early shipment, but was placed on the inside in a later supply.

A more detailed description and laboratory results with a number of insects are given by Pearsall and Wallace (1).

With the early model there was some fire hazard from sparks. This has been eliminated by an automatic lighter that now ignites the cord inside the can. The metal rim of the cannister becomes hot enough to burn flesh if touched immediately after burning the charge. The container is reported to reach a temperature of 190°F. The heat was sufficient to dull the polish of floor wax under the can with outside bottom insulation when used as directed. The wax was not affected when the can with the inside bottom insulation was used. However, under the perforated top the cannister with interior insulation lacked a cardboard baffle, which was in the other type can. The absence of the baffle apparently permitted more rapid dissipation of the smoke and perhaps heat.

A more recent, all-metal cannister lacks the baffle and is insulated on the inside bottom with corrugated paper. It appears that the newer cannister should be provided with better insulation. Instructions now recommend placing the all-metal cannister on a heat resistant surface before igniting.

The combustible cord in the samples tested contained sulphur, which proved very objectionable. In

* "Cordacide" manufactured by Darworth, Inc. of Simsbury, Conn.

a trial in one home, all exposed metal surfaces such as faucets and silverware were heavily tarnished. The newer cord does not contain sulphur.

In one case there was a bed patient in a room separated from the remainder of the house by a loose-fitting door that permitted cross draft in the room. Very little smoke and no objectionable odor was noticeable in the bed room during treatment, nor was any objectionable odor present in the treated rooms after airing.

A further test was made in the basement of a very old house. The smoke readily penetrated through the two floors above in this case.

A DDT cord was used in a home lightly infested with carpet beetles and clothes moths. An adult moth was seen a few days after the smoke treatment, but no further complaints were received.

Laboratory tests were conducted in a 25 cubic foot chamber with seven species of household and stored-food pests. Petri dishes were placed on the bottom of the chamber and about four feet above the bottom. Following settling of the DDT particles, the insects were placed in the treated dishes and left for observation. Contact with the insecticides on the bottom or higher in the cham-

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The effects of DDT on household and stored-food pests when applied as a smoke aerosol. 1/30, 1/60 means one foot of DDT cord containing 0.45 grams of DDT per 30 or 60 feet. *After 9 days exposure.

Insect species	Insect stage	Percentage killed		Practical interpretation
		1/30	1/60	
<i>Tribolium confusum</i>	Adult	100	—	Kill crawling adults
<i>Oryzaephilus surinamensis</i>	Adult	100	—	Kill crawling adults
<i>Ephestia</i> sp.	Adult	100	—	Kill flying adults
<i>Tenebrio molitor</i>	Larva	80*	100	Kill long exposed larvae
<i>Anthrenus vorax</i>	Larva	0	55*	Probably little kill
<i>Anthrenus vorax</i>	Adult	—	100	Kill exposed adults
<i>Anthrenus verbasci</i>	Larva	—	5*	Probably no kill
<i>Acanthoscelides obtectus</i>	Adult	—	100	Kill flying adults

ber was about equally toxic to the insects. The chamber method of testing frequently exposes the insects to greater quantities of the insecticide than under open conditions, where the insects are free to escape. The data with the probable effect on the insects under open conditions, based on the experience of the writers, are given in the accompanying table.

Tribolium, *Oryzaephilus* and *Ephestia* were much more susceptible than the other species and likely would be killed on exposed surfaces. *Tenebrio* larvae in exposed conditions or feeding on grain debris in feed boxes or store rooms probably would be killed. *Anthrenus* and *Acanthoscelides* adults would be killed in quarters where they could not readily escape. *Anthrenus* larvae are very resistant and might escape to unexposed crevices and materials in most buildings, making control ineffective. The proper applications of DDT in buildings is an effective method of eradication of carpet beetle infestations (2).

The experience of the writers with aerosols of the smoke type suggests that there is insufficient penetration of the smoke into hidden areas to eradicate carpet beetle infestations. Recent tests in infested buildings have failed to eradicate carpet beetle larvae.

Preliminary trials suggest that smoke type aerosols may be a feasible method of dispensing certain insecticides in limited areas against some insects. Considerable testing is essential before the method can be recommended without qualification.

Literature Cited

1. Pearsall, D. L. & P. P. Wallace. 1946. "Insecticide Cords," Soap & Sanitary Chemicals, 22; 10:139, 141, 143, 161 and 163.

2. Sweetman, Harvey L., and A. I. Bourne. 1946. "The Use of DDT for the Control of Household Pests," Mass. Ext. Ser. Sp. Cir. 136.

CARPET BEETLES

(From Page 139)

method the larvae will tend to cling to the paper when it is tilted to roll off the inert material. However, no matter how rough the paper is or how long the larvae are allowed to rest on it, many larvae are swept off when the paper is tilted. Therefore, this operation has to be repeated many times before most of the larvae are separated from the medium. When the screening method is used, many larvae wedge themselves between the screen wires and much time is required to free them. Separation of the larvae from the cast skins and from the dead insects is another time-consuming operation.

The new method of separating carpet beetle larvae is rapid and efficient. The negative phototropism of the larvae is utilized with the aid of an aluminum platform of novel design (Fig. 2). This platform has an over-all length of 36 inches. The flat surface is 25 inches long and 20 inches wide and is bounded on three sides by a one-inch flange. The tapered surface slopes at a 70-degree angle; is 11 inches long, and the width diminishes from 20 inches at the bend to one inch at the mouth. Two-inch flanges along the sides aid in deflecting the sliding larvae into the mouth of the platform. To this mouth is soldered an open-center jar top to which a Mason jar is attached for collecting the insects.

The medium containing the

larvae is spread in a thin layer over the flat surface of the platform, and a strong light is placed at the rear. The larvae, being negatively phototropic, will crawl away from the light to the front of the platform and slide down the sloping surface into the jar. The only time consumed in this operation is that required to scatter the media over the platform. The insects do the rest.

The collection of carpet beetle larvae of a required size is greatly facilitated by using the separator platform and brushing the larvae, as they travel to the front, into a petri dish to which a carboard lip has been attached (Fig. 2).

The methods described for collecting adult carpet beetles and separating the larvae from the medium have saved us many man-hours of labor, and thereby made it possible to maintain a large number of cultures. Although these two methods have been used mainly for black and furniture carpet beetles, it is believed that they can be used advantageously in rearing many other insects having definitely negative or positive phototropism.

Reference

- (1) F. W. Fletcher, "Fabric Pests," Soap and Sanit. Chem. 18 (12): 117, 119, 121, 123. 1942.

An automobile body cleaner and polish contains Stoddard solvent, an abrasive, a salt of a higher aliphatic amine such as that from coconut oil, 2-ethyl hexyl, 3-methyl butyl orthophosphoric acid, and a water-soluble phosphate. The latter is to inhibit corrosion of metal when the cleaner is packaged in a metal can. H. G. Smith, M. L. Hill, and T. L. Cantrell, to Gulf Oil Corp. U. S. Patent No. 2,442,024.



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Sprayers Up to Date

By Dr. E. G. Thomssen

PART II

A MODIFICATION of the tank pressure sprayers known as the Sure Shot Sprayer, is offered by the Milwaukee Sprayer Company. It comes in 6 ounce and 1 quart sizes. The smaller size is often met with at gasoline service stations for spraying window cleaning fluid on windshields. Sure Shot Sprayers consist of a small air pressure tank tested to 300 lbs. pressure. The liquid is filled through a screw cap on its top into which is inserted an ordinary rubber tire air valve which serves to admit air pressure from an air hose tire-chuck. Hand pumps that require no hose are also available to pump up the pressure. About one quarter of the way down the side of the cylinder, and directly opposed to each other, the spray nozzle and trigger are fixed. The jet for the small size is the mist type.

The quart size sprayer produces a pin stream jet or a mist spray jet. Ordinarily the jets are set close to the cylinders, though extension units are available for special work. On the large sprayer an air bomb filler that completely discharges one quart of liquid is available. This is used instead of the screw cap and is inserted and screwed down into its opening. This operation pierces the air bomb to build up the proper pressure. These sprayers are meeting acceptance by users of insect sprays, disinfectants, window cleaners and by garages where other spraying operations are necessary. As these sprayers are self-contained, produce a fine mist, are sturdily built and easy to use, they appeal in many directions and are jobbed by sanitary supply dealers.

The Fumeral Instant Diffuser is made by the Fumeral Company who

state that they have made 40,000 installations of their portable and stationary sprayers. Their equipment is designed to be used by small or large operators where high or comparatively low pressures of steam, air or carbon dioxide (from cylinders) are available. It handles all types of liquids. The company can supply special electric or gas driven portable air compressors for exterminators using these diffusers. The Portable Model 7-S is of one-half gallon capacity and is recommended to be used for less accessible places like closed vats, elevator shafts and closets. It is well adapted to spray residual DDT formulations in stables, on screens, windows, walls, under tanks, and areas difficult to reach with the stationary sprayer.

The stationary model marketed by Fumeral consists of an inexpensive, efficient, modern, four nozzle atomizer. It may be connected directly to steam or air lines. By using a number of these units, which are reasonably priced, a slow settling mist is obtained. Four nozzles operate from the liquid insecticide supply which is contained in a standard half-gallon glass jar. No pressure is exerted on this jar. If desired, 2 or 3 nozzles may be used instead of 4. By the use of this sprayer, a fog is developed that is slow in settling and penetrates into all accessible places. Since this equipment is easy to install, has no moving parts, is simple to operate and low in cost, it enjoys wide use in many industrial applications.

ELECTRIC or power sprayers have enjoyed popularity for a long period. Prominent manufacturers in the field are Sprayer Corporation of America, Hudson Manufacturing Co., Lowell Manufacturing Co., and Piezo Manufacturing Co. Sprayers of this

type vary in size from about 1 quart upward to 100 gallons, depending upon size of the area to be sprayed. The essential parts of electric sprayers are a tank, spray head, air hose, supporting frame, an electric motor, gun or compressor, and an extension plug-in cord. Other accessories are a carrying handle, time switch, and rubber feet to reduce vibration during use and marring of surfaces. In these sprayers the fan, rotor or compressing unit which is directly attached to the motor develops up to 25 lbs. nozzle pressure. The air blast, as in compressed air sprayers, atomizes the liquid forcibly for a distance as far as 25 feet, enabling it to get into crevices, corners and cracks. The time switch may be set anywhere from 1 minute to half an hour so that the sprayer operates without attention from the operator. The latter type is used most generally for space spraying.

The Sprayer Corporation of America makes four sizes of their Fan Type Sprayers as well as their #54 Mistmaster. The fan type sprayers can be used for space spraying with the desired spread and force. A changeable spray tip makes it possible to use residual sprays. Model 5200, just released, is the largest hand type electric sprayer on the market. By its use out-of-the-way places can be covered, not always reached by lower powered sprayers. Model 6600 is equipped with a wholly enclosed motor and may be used safely in dusty places or where volatile fumes are present. The Mistmaster #54 has certain improvements like an improved time switch, closer regulation of the spray nozzles, so it can be adjusted from the size of a very fine mist to coarse droplets, light-weight aluminum tank to eliminate breakage, improved rotor blades and a new firm



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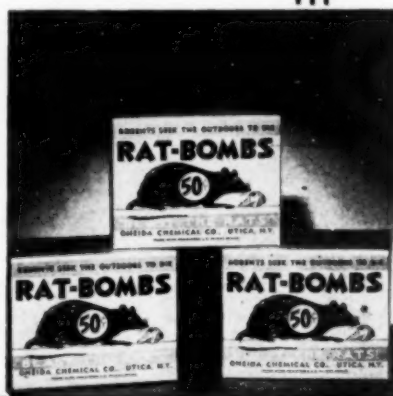
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Many of the newer type insecticide sprayers such as the aerosol, steam, electric and tank pressure types are covered in Part II of this article

base. This sprayer must be used with an oil base insecticide to assure proper lubrication.

Hudson Manufacturing offers two useful sprayers in the power sprayer field; their Electric Sprayer and their Sprayer-Duster. The Electric Sprayer has a capacity of 3 quarts and sprays most liquids. It is designed for use in dairies, taverns, restaurants, warehouses and public buildings. The motor is 1/10 H.P. which develops a 22-lb. nozzle pressure. The spray head is so designed as to assure very fine dispersal of the liquid, the carrying handle is well balanced for ease in handling, the frame is very sturdy and the time switch is easily adjustable from 1 to 30 minutes without further attention. The Sprayer-Duster works well with all standard insecticide liquids or powders as well as disinfectants and deodorants. The special nozzle is adjustable to produce a forward or upward forceful spray mist. The 1/10 H.P. motor develops 22 lbs. pressure on the chromium plated, spray head. The air hose is braided and is equipped with slip-on fittings for easy detachment. Rubber feet reduce vibration and prevent marring and scratching of articles upon which the sprayer may be set.

The Piezo Electric Sprayer, Model ES-2, is of sturdy construction, light in weight and does not vibrate in use. A new type compressor produces sufficiently high air pressure to atomize insecticides and penetrate small cracks, crevices and corners. The spray head may be used either in a vertical or horizontal position without changing the sprayer position. It dispenses 27 oz. of liquid contained in a glass jar in 32 minutes operating time

There are also larger size power sprayers available, but these are designed mainly for agricultural crops. In rare cases where large inside areas

or many animals are to be treated, they find some use for these purposes. Two such sprayers are the Cowp Sprayer made by The Electric Sprayit Company, and the Hanson Sprayer offered by Howard Hanson & Company. Other companies make power sprayers but these two will serve as typical. These sprayers are commonly powered by horses, tractors or gasoline engines. The Cowp Sprayer is a portable 12-gallon one designed for use on the farm for spraying cattle, the orchard, weeds, paint and for inflating tires. It comprises, in addition to a 1½ H.P. gasoline engine-driven compressor, the appliances that make it suitable for these purposes. The Hanson Sprayer is designed for insecticides, soil fumigants and herbicides. It operates at from 0 to 125 lbs. pressure with a pump capacity of 5 gallons per hour. It is driven by a 1½ H.P. gasoline engine and the pump has but one moving part, a centrifugal jet, applying pressure on the insecticide through a special venturi. It comes in sizes of from 50 up to 200 gallons, together with special accessories.

THE term "aerosol" came into wide use with the introduction of the aerosol "bomb" which, as is well known, contains a liquid propellant, usually freon. In order to simulate aerosols or micron-size droplets by mechanical means, sprayer manufacturers have conducted numerous experiments to produce satisfactory, mechanical aerosol sprayers. The impetus, then, from the introduction of aerosol bombs has brought about many sprayer improvements. Mechanical sprayers, as has already been stated, have the advantage of making it possible to spray a higher concentration of active ingredients in an insecticide than the bomb whose chemical propellant is insecticidally

inert and comprises much of the insecticide's composition.

Among the aerosol type mechanical sprayers, the Cornelius, the Torpedo and the Commando enjoy considerable popularity. In the first two sprayers, high air pressure is depended upon to produce the aerosol while the commando system produces the fog by heat and pressure and it may thus be termed a thermal generated type sprayer.

The Cornelius Sprayer is described as having hydraulic aerosol atomization that "produces billows of penetrating fog spray." It consists of a small, compact, leak-proof 8-ounce item that is made by specialists in the hydraulic and pneumatic equipment field. This sprayer works on the piston principle and produces a 300-lb. pressure that drives the liquid through a diffuser disc having .008" slots to break liquids down and then forces them through a tiny aperture (.006") which produces the fog. The mechanism is constructed of metal with some plastic parts, while the container is a glass jar. Its weight is 12 ounces and it is but 5½ inches high, yet it is claimed this sprayer will quickly treat a large room. If a coarser spray stream is desired, a slow stroke on the system is employed.

About a year ago, the Torpedo Sprayer or Torpedo Aerosol Spray Gun attracted considerable attention. This high-pressure steel sprayer consists of a rather complicated mechanism that operates on AC or DC current. It is designed for large scale use of insecticides. One loading, it is claimed, would be equal to 100 aerosol bombs and would atomize sufficient insecticide to treat 1,600,000 cubic feet without any streaking, dripping or wetting. Some users of this sprayer have reported that the mechanism is so complicated that when it gets out of order it cannot be readily repaired on the spot for further immediate use. This condition and its higher price are reported to have limited its sale.

Another Torpedo Sprayer termed the "Microsol Torpedo" has made its appearance. This product is designed to be used with the sprayer manufacturer's special, highly concen-



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Other distinctive features of the Mistmaster Electric Sprayer are the Automatic Time Switch which can be set for spraying 1 to 24 minutes before shutting itself off, the volume control which regulates the density of spray to suit conditions, and the adjustable spray nozzle which may be directed in any position. Light in weight, built throughout to precision standards, this perfected sprayer is conveniently held in one hand, may be used for both portable and stationary spraying, and will give a life-time of thoroughly satisfactory service with all oil base insecticides.

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trated insecticide. It is a patented sprayer that operates as an electric sprayer by centrifugal force with a directional air blast. Uniform aerosols are said to be thus formed.

The Commando Aerosol Gun attracted considerable attention when it was first introduced. The idea behind this sprayer is novel in that it volatilizes a specially formulated insecticide into a dry gas or smoke by electric heat and expels the smoke by air pressure. It is designed for use only with Commando Aerosol Concentrate. The Aerosol does not contain DDT and is used only as a space spray. It is claimed that food products are not contaminated in contact with the smoke or fog. The operation of this apparatus is simple. The insecticide is filled into the opening of the plastic compartment, the cap is replaced, air pressure is developed by a piston type, manually-operated pump, and the sprayer is plugged into an electric socket. After about a five-minute wait the thermostatically controlled heater indicates by the flashing of a red light that the insecticide has been vaporized. The gun is set down and the aperture is opened and the fog is released. This quickly builds up a dense fog which lasts until the liquid is exhausted. To stop it, one merely pulls out the electric plug. The fog from this sprayer takes over an hour to settle as it is exceedingly fine.

Upon interviewing sanitary supply dealers who have handled this aerosol gun, one finds two complaints. The first is that they must use but one insecticide, and the second is that the insecticide specified kills slowly and does not have a high percentage of mortality. Still others objected to the kerosene odor that lingers for too long a period. This company is, however, continuing intensive research work and announces that shortly they will introduce a new and larger industrial model sprayer.

Lethalaire is another aerosol insecticide applicator that propels a dry gas. It is an offering of the Virginia Smelting Company and consists of a 5-lb. portable container or of a permanently installed system with push button control. Various formulations of insecticides may be used

with this applicator in the home, for industrial and institutional use and in greenhouses. It requires special Lethalaire formulas, however. The container measures 4 x 12 inches and the nozzle tube is 15 inches long. At ordinary room temperatures, the cylinder will operate 1¼ hours and cover 750,000 cubic feet of space. The flow of the insecticide may be metered to comply with correct concentrations for fixed areas. The self-propelled mist, released by the turn of a hand wheel, remains suspended for half an hour in quiet air. Economical and thorough applications of space spray, non-toxic to humans, are said to be possible with this system.

STEAM sprayers for use mainly with concentrated sprays have met with rather favorable reception in recent years among large users of insecticides. While they have yielded some of their popularity to more easily used sprayers of other types, they are still used to spray large volumes of insecticides. We will consider as typical pieces of equipment of this type the Spraymaster, the Commander and the Tifa makes.

The Spraymaster is an offering of Du-La Manufacturing Company. It produces a continuous steam spray from a mixture of many suitable liquid insecticides and water volatilized by electric generated steam. The company does not sell insecticides. There is said to be no fire hazard in using this equipment, as the electric current is cut off when the water level drops below that of the heating element. The sprayer is compact, economically priced and the insecticide-steam suspension built up penetrates the out-of-way places to get at both flying and crawling insects.

The Commander Hydro Mist Insecticide Vaporizer has had good reception. It is a rugged, durably built, automatic machine that disperses 44 ounces of liquid in one hour to cover 100,000 cubic feet. A selected auto jet gives a complete range of spray density, providing specific treatments for different types of insect infestations. Safety of use is stressed by the makers. A time clock, improved insulation, moisture

proof cord, safety pressure control valve and streamlining to eliminate sharp corners protect the user from accidents. Its use is very simple. It is filled, plugged in, set for time and forgotten until it shuts off. Being light in weight and small in size, the Commander is readily portable. The makers also announced last year the introduction of a "half pint" steam sprayer called the "Hydro Mist Scout."

The Tifa system or Todd Insecticidal Fog Applicator, a product of Todd Shipyards Corporation, is an adaptation of the fog generator made for the U. S. Navy during the war. The fog is generated from a mixture of water, kerosene, fuel oil, Diesel oil or special oils blended with the desired insecticide including those which contain DDT. A 20-gallon milk can or other suitable tank may be used to contain the liquid. It is fed through the generator by a hose. The liquid is atomized into droplets from 135 microns down to ½ micron in size which are controlled by a dial. The larger particles are used for residual sprays. The sprayer is compact, may be transported on a jeep, truck, trailer or even a helicopter, and may be handled easily by one man. High velocity hot air generated by a gasoline engine and patented components form the fog. This fog does not stain most articles it contacts. Being of large capacity this machine is particularly adapted for treating large areas in a short period of time. In a recent issue of *Life** it was claimed this fogger treated a 40 house area out of doors in 40 minutes at a dollar per house. It is also used for treating dairy barns, institutions, factories and hotels on a large scale. We witnessed an outdoor demonstration of this apparatus some time ago and later checked up with an interested entomologist as to results. His comments were that the kill and residual results were not entirely satisfactory and he was inclined to believe that mechanical air pressure sprayers did a better insect eradication job. However, for large areas, warehouses, entire factories, ships, and the like, with varia-

* July 19, 1948, p. 49.

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tions in insecticide formula, the Tifa appears to have excellent possibilities.

There are other sprayers on the market and more are constantly being offered. On the whole, however, this is a picture of sprayers up-to-date. It is a far more comprehensive one than could have been presented a decade ago, which indicates much progress in this field in recent years.

QUATERNARIES

(From Page 137)

Results reported that in the evaluation of the germicidal efficiency of quaternary ammonium compounds there is a considerable hazard in relying solely upon a standard agar medium for counteracting bactericidal and bacteriostatic action for all types of test organisms. Similarly, the use of naphuride sodium would not appear to be satisfactory (at least except for extremely high ratios) in that it too was not adequate for completely removing all bacteriostatic action in the concentrations employed. The combination of naphuride sodium as an inhibitor in a dilution blank and standard TGE agar or other standard agars would seem to offer little protection from bacteriostatic

action for certain types of bacteria. The possibility of increasing the concentration of naphuride sodium even more, may be considered for use with standard agars but will undoubtedly prove to be impracticable for routine use.

Lecithin ("Asolectin" in "Tween 80" incorporated into TGE agar at the rate of one gram lecithin and seven ml. of "Tween 80" per liter of agar) offers many advantages even though it has limitations. For the evaluation of the germicidal efficiency of quaternary ammonium compounds, dilution blanks containing lecithin and an agar plating medium containing lecithin were found to be satisfactory.

Care must be exercised to maintain a satisfactory ratio of lecithin to quaternary in the dilution blank. For *Staphylococcus aureus* and *Micrococcus caseolyticus* a ratio of lecithin to quaternary of 100/1 in the dilution blank has proved to be satisfactory (in concentrations used) when the plating TGE agar contained one gram of lecithin per liter. Lower ratios undoubtedly could be employed for *Escherichia coli* as a test organism but would not be recommended because there is the definite possibility that in

plating any cultures which have been exposed to quaternaries (or other germicides) injured bacterial cells may not reproduce on a standard agar medium but may form colonies in a medium containing an adequate inhibitor. The significance of this may be more accurately evaluated when it is realized that injured cells which fail to grow on a standard agar medium (or even one containing considerable amounts of inhibitors) may well be capable of reproducing in the animal body and thus be responsible for infection.

Two theories regarding bactericidal and bacteriostatic action have been proposed. (6) One holds that both are quantitative degrees of the same phenomenon whereas the other holds that they are separate and distinct, being brought about by different phenomena. Our studies would give some support to the belief that two distinct phenomena are involved. Survival curves for the sensitive culture 399-2 indicate that the resistance of this test organism to the germicidal action of quaternaries is not greatly different from that of *Staphylococcus aureus* or *Micrococcus caseolyticus*. However, it has already been pointed

TABLE IV

RELATIVE EFFICIENCY OF INHIBITORS FOR QUATERNARIES AS INDICATED BY EXPOSURE OF CULTURE 399-2 (SARCINA) FOR SPECIFIED TIMES IN 10 ML. OF BUFFERED (pH 7.2) WATER

Results reported as colony counts per petri dish comparing platings with Standard TGE and Lecithin TGE agar; 37°C.; 48-72 hours.

Inhibitor Milligrams	Lecithin ¹						Naphuride Sodium			None					
	200	200	200	200	200	200	200	200	200	200	0	0	0	0	0
Quaternary ² Milligrams	0	0.2	0.4	0.8	2.0	0	0.2	0.4	0.8	2.0	0	0.2	0.4	0.8	2.0
Ratio	Inhibitor Quaternary														
	1000 500 250 100						1000 500 250 100			1000 500 250 100					
Exposure Time 25°C.	Plating Medium														
0-10 Minutes	TGE ³	160	135	46	0	0	163	0	0	0	0	181	0	0	0
	Lecithin ⁴	149	145	64	0	0	135	143	154	0	0	137	0	0	0
one Hour	TGE	148	120	41	0	0	168	0	0	0	0	151	0	0	0
	Lecithin	134	105	65	0	0	105	167	122	0	0	105	0	0	0
five Hours	TGE	122	90	32	0	0	128	0	0	0	0	118	0	0	0
	Lecithin	121	LA*	LA*	0	0	118	43	11	0	0	79	0	0	0
24 Hours	TGE	148	108	38	0	0	133	0	0	0	0	3	0	0	0
	Lecithin	130	132	104	0	0	164	0	1	16	0	0	0	0	0

* LA=Laboratory Accident

¹ Lecithin ("Asolectin" in "Tween 80").

² (Quaternary) Alkyl Dimethyl Benzyl Ammonium Chloride.

³ TGE: Standard Tryptone Glucose Extract Agar.

⁴ Lecithin TGE Agar: One gram lecithin per liter TGE agar.

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out (Table 1) that the sarcina culture 399-2 is more sensitive to bacteriostatic action than the other cultures employed.

The culture of sarcina 399-2 has been found to be valuable as a test organism to check efficiency of bacteriostatic control. When used in low concentrations (about 100 colonies per petri dish) it was observed to be a very good index of residual quaternary bacteriostasis.

Conclusions

LECITHIN in an adequate ratio of lecithin to quaternary was found to be satisfactory for preventing bacteriostatic action, especially when lecithin is also incorporated into the plating medium, for at least *Escherichia coli*, 399-1 (a Gram-, non sporulating rod), *Staphylococcus aureus* and *Micrococcus caseolyticus* in ratios of lecithin to quaternary of about 20/1, 20/1, 100/1 and 100/1 respectively within the ranges of these experiments. The sarcina culture (399-2) for which even very small concentrations of residual quaternary are bacteriostatic, is not easily protected. For limited concentrations of quaternary it has been possible to protect this organism by increasing the ratio of lecithin to quaternary up to about 1000/1. It becomes physically impossible and impracticable to incorporate a concentration of lecithin in a solution sufficient to give this high ratio except of course with very small concentrations of quaternaries. However, a ratio of only 500/1 in the medication tube was effective when additional lecithin was incorporated in the plating agar.

Naphuride sodium in the concentrations employed and in the ratio of inhibitor to quaternary of 1000/1, 500/1, 250/1 and 100/1 exerts some inhibition to the germicidal action of quaternaries but has little effect on completely eliminating bacteriostasis. Increased concentrations of naphuride sodium would appear to offer more favorable results but would probably be impracticable for routine work. Naphuride sodium is quite soluble in water and in these concentrations did not appear to be bacteriostatic in itself. The use of naphuride sodium for inhibiting the bactericidal action, together

with lecithin incorporated into agar medium for elimination of bacteriostatic action may have some limited use

For incorporation into the buffered water used in the swab-rinse plate count technique for determining the bacterial count on dishes and utensils sanitized in quaternaries, as yet we have no completely satisfactory single inhibitor that is adequate for protecting all types of bacteria encountered under practical conditions. Actual titrations of buffered swab-rinse water from glasses sanitized in 200 p.p.m. of quaternary and swabbed, indicate that concentrations as great as 20 p.p.m. of quaternary may result in the buffered swab water. In order to maintain a ratio of 100/1 of inhibitor to quaternary, this would require eight mg. of lecithin in a four ml. blank, since at least .08 mg. quaternary residual may well be present. Even greater concentrations of inhibitor would undoubtedly be required if the sanitizing solution of quaternary is increased to 300 or 400 p.p.m. However, it has been shown in tables 2, 3 and 4 that while a ratio of 100/1 did protect *Staphylococcus aureus* and *Micrococcus caseolyticus* it failed to protect the more sensitive sarcina 399-2. The ratio of 100/1 would afford protection for some types of bacteria but not all.

There may be some limitation in the use of lecithin in "Tween 80" for incorporation in buffered water for the swab-rinse method as it would tend to soil dishes which were swabbed and also tend to foam considerably when shaken to disentangle cotton swabs before plating. There is also the possibility of growth stimulation if considerable time elapses between swabbing and plating except under refrigeration. Conversely, there is the definite possibility that lecithin may protect some organisms which otherwise might die before plating. The use of lecithin would appear to be one possibility and could, of course, be used with limitations even though it might not protect all types of bacteria in the concentrations employed.

Naphuride sodium may offer a possibility for use in swab vials but would have perhaps even greater

limitations and should of course be employed with an agar medium containing lecithin.

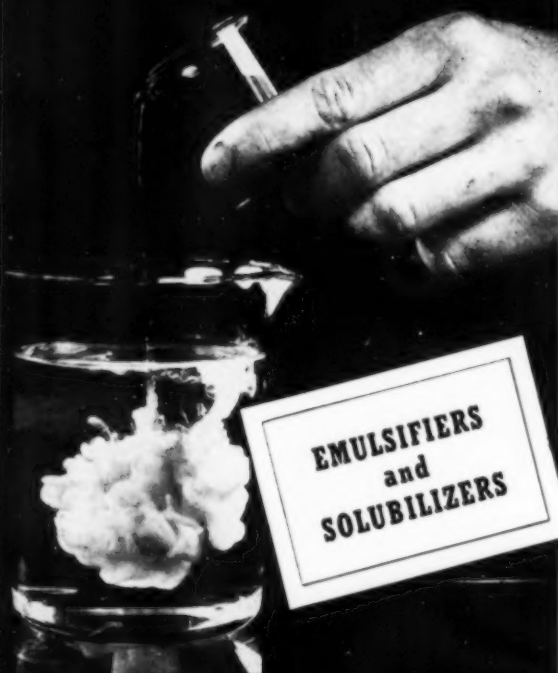
For the evaluation of the germicidal efficiency of quaternary ammonium compounds, nine ml. blanks containing sufficient lecithin to maintain a ratio of lecithin to quaternary of 100/1, used with a TGE agar medium containing lecithin in "Tween 80" of one gram "Asolectin" to seven ml. "Tween 80," were found to be satisfactory for *Escherichia coli*, *Staphylococcus aureus* and *Micrococcus caseolyticus*. For more sensitive test organisms, higher ratios may be required.

Summary

IT was pointed out that different test organisms have different threshold concentrations of quaternaries in the presence of which they can produce colonies in an agar medium. It was demonstrated that plating agar alone was not completely inhibitory for quaternary ammonium compounds in that it did not eliminate all bacteriostatic action. Limitations of lecithin and naphuride sodium for inhibiting the bactericidal and bacteriostatic action of quaternaries were discussed. Results indicate that lecithin may be added after the quaternary has started to kill and further germicidal action prevented. The advantage of using lecithin in the plating agar was pointed out. Effective ratios of inhibitor to quaternary were discussed. It was noted that whereas we have a satisfactory inhibitor for use in the laboratory evaluation of quaternaries, some limitations are confronted when we attempt to employ this inhibitor in swab-rinse vials for checking bacterial counts of food utensils sanitized in quaternaries.

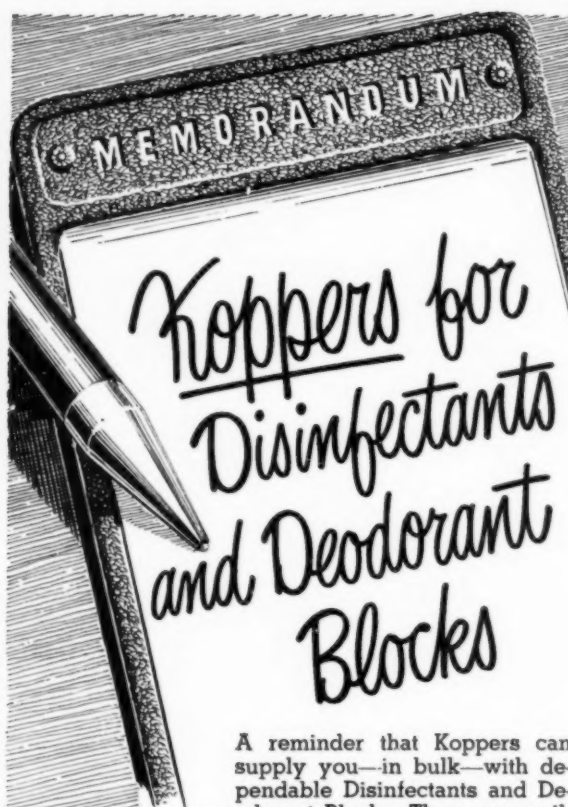
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Potency of the Quaternary Ammonium Salts. *Amer. Jour. Pharm.*, 118, 320-323.

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COLGATE HISTORY

(From Page 49)

a building at Jeffersonville, Ind., to make soap there.

"The merger of Colgate with Palmolive-Peet Company in 1928 added much domestic and foreign plant capacity to the concern. Although the Colgate family owned a large part of the new company, its president was Charles S. Pearce who headed the Palmolive Company of Milwaukee. This concern was an outgrowth of the business established in 1864 by Burdette Johnson later known as the B. J. Johnson Soap Company. Caleb Johnson, son of the company's founder, introduced 'Palmolive' soap in 1898 when it was a floating soap made with olive and palm oils. By 1916, sales of 'Palmolive' were so great the company name was changed to the Palmolive Company. Ten years later the Peet Brothers interests were merged with Palmolive to form Palmolive-Peet. The Peet brothers—William, Robert and Jesse—had been in the soap business at Kansas City since 1872. By the time this merger had taken place, both concerns had many domestic plants. Palmolive, especially, also had many in foreign countries and absorbed companies in the U. S., such as the Crystal Soap Company which started in Milwaukee in 1872.

"The Colgate-Palmolive-Peet Company continued under the presidency of Mr. Pearce until 1933, when S. Bayard Colgate took the helm, succeeded in 1938 by E. H. Little, who is currently president. In that year 'Vel,' the household synthetic detergent was one year old, most of the brands previously mentioned had been introduced in the United States and some in other parts of the world, and the soap works established in 1837 by Kirkman and Son, Inc., Brooklyn, had been part of CPP for eight years.

"Under Mr. Little's guidance, Colgate-Palmolive-Peet Company became very active in the field of synthetic detergents and the introduction of many new products. One of these, 'Lustre Creme Shampoo,' was acquired in 1947 when CPP bought Kay Daumit Inc., Chicago, its originator.

"Synthetic detergents made by Colgate-Palmolive-Peet are of two types. One of these is made by reacting glycerol with sulfuric acid to form sulfated glycerol. This is mixed with coconut oil, then neutralized with sodium hydroxide to form a paste. This paste is used to make 'Vel,' household detergent. The paste is crutched with builders and is then sprayed in a tower to form granular or bead particles.

"The newest CPP synthetic detergent, 'Fab,' is made by treating an alkylated aromatic hydrocarbon compound with sulfuric acid and then neutralizing the resulting chemical mixture with sodium hydroxide. This also results in a paste which is crutched with builders and then sprayed through a tower."

SOAP SURVEY

(From Page 47)

something else numbered 275 or 30.3 percent.

More men, 85, in the survey used "Fitch" shampoo than any other brand. "Fitch" took top spot in this category by virtue of the fact that it was used by 67 or 51.9 percent of the men who used different brands than the respondents. The number of men who, in addition to the respondents, used "Fitch" was 18 or 5.3 percent. "Lustre-Creme" was second, although only five men, using a different product from that used by the respondent, shampooed with it. It was in the column of men using the same shampoo as the respondent that "Lustre-Creme" made a good showing. Here, 42 men were credited with using "Lustre-Creme," the percentage being 12.4. Next in the table on brands used by men in the family came "Halo" with 40 users and 8.6 percent; "Shasta" had 35 users for a percentage of 7.5; "Drene" followed with 34 users

or 7.3 percent. In order the next five were "Prell," "Kreml," "Rayve Creme," "Conti" and "Breck." Among men who used something other than that reported by the person answering the questionnaire, "Kreml" stood in second place with 17 users and a percentage of 13.2.

In the soap for shampoo class, men made "Ivory" their favorite with 58 reported users or a total of 30.2 percent. "Ivory" also led in the department of men using something else than that reported by the respondent in the survey. "Lux" was preferred by 28 men; "Camay" by 15 and "Palmolive" and "Lifebuoy" by 13 apiece.

Nearly 76 percent of all the women who answered the survey said they used the same soap for face, hands and bath. "Lux" toilet soap was the leader among women using one soap for the three purposes. "Lifebuoy" was the most popular bath soap, while "Lux" retained top honors as best liked soap for face and hands only. "Ivory" was listed in second place as face, hands and bath soap and "Palmolive" was further down in third place. Next came "Camay," then "Cashmere Bouquet" to wind up the top five. Fifth to tenth places were occupied in order by "Sweetheart," "Lifebuoy," "Woodbury," "Swan" and "Wrisley."

Other women in the same households of the respondents made "Ivory" their favorite for face, hands and bath by two votes over "Lux" and eight over "Palmolive."

Shifts in brand preference for shampoos as of now and a year ago show that "Lustre-Creme," which now heads the list, came from third place a year ago. "Drene" dropped to a second place tie with "Halo," after having occupied the number one position last year. "Halo" also lost ground, but not as much as "Drene." The biggest change in the standings came in the case of "Shasta," which was at the bottom of the heap with only three women preferring it last year. This year "Shasta" is rated third with 55 votes. "Prell" also moved ahead by going from 25 last year to 52 this year. "Rayve Creme" rose from 30 in '47 to 44 in '48, the only other shampoo making sizable progress.

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★★ WATER RESISTANT

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packed in 4 oz., 16 oz. and in
Bulk.

***Per-Mo Rat Paste**
made with RED SQUILL (Fortified)
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***Per-Mo Brown Rat Killer**
made with ANTU. Packed in 4-8
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WRITE TODAY. FULL
PARTICULARS FIRST LETTER

TRADE MARKS

(From Page 69)

the previous two words for liquid detergent cleaner. Filed Nov. 14, 1947 by Morton S. Pine Co., Cleveland. Claims use since Oct. 28, 1924.

SOAPTERGENT—This in upper case, bold stencil letters for soap. Filed Feb. 26, 1948 by Essential Chemicals Co., Milwaukee. Claims use since Jan. 30, 1947.

DIAL—This in lower case, extra bold, script letters for bath and toilet soap. Filed Mar. 23, 1948 by Armour & Co., Chicago. Claims use since Nov. 10, 1947.

SPIRITTINE—This in upper and lower case, extra bold, italic letters for liquid soap. Filed Mar. 24, 1948 by Spiritine Chemical Co., Wilmington, N. C. Claims use since 1900.

MARKEM—This in upper case, bold letters for cleaning compound for cleaning ink from metal reservoirs. Filed Apr. 8, 1948 by Markem Machine Co., Keene, N. H. Claims use since June 15, 1921.

Fanciful drawing of an ancient warrior holding a bow for shampoo. Filed Oct. 18, 1947 by Helen Curtis Industries, Inc. Claims use since July 10, 1946.

IMPREGNO—This in upper case, medium letters for insecticide concentrate. Filed Jan. 10, 1948 by S. B. Penick & Co., New York. Claims use since June 1, 1939.

PYREXCEL—This in upper case, bold letters for insecticide concentrate. Filed Jan. 10, 1948 by S. B. Penick & Co., New York. Claims use since Sept. 20, 1946.

INSTO—This in upper case, open and shadow letters in the form of an arc for insecticides. Filed Feb. 7, 1948 by Bacon Products Co., Chattanooga, Tenn. Claims use since Jan. 21, 1948.

JET-OIL—This in upper case, extra bold letters in the form of an arc for shoe polishes. Filed Aug. 7, 1947. Claims use since 1899.

"GLASSENE"—This in upper case, extra bold, black letters for household detergent for cleaning dishes, etc. Filed Sept. 29, 1947 by Hans J. Heckmann Co., Towson, Md. Claims use since Aug. 1, 1946.

BURMA-SHAVE—This in upper and lower case, bold, italic letters for shaving cream. Filed Oct. 10, 1947 by Burma-Vita Co., Minneapolis. Claims use since Jan. 1, 1926.

S'COR—This in upper case, extra bold black letters, the top horizontal line of the letter, "s" extending across the other three letters for coconut oil toilet soap. Filed Dec. 24, 1947 by Sanitation Corp., Chicago. Claims use since Dec. 15, 1947.

GRIFFIN—This in upper case, extra bold letters in the form of an arc across the fanciful drawing of a winged four legged animal for shoe polishes. Filed Jan. 17, 1948 by Griffin Manufacturing Co., Brooklyn. Claims use since Apr. 4, 1894.

STERLING—This in large and small capital letters for preparation in liquid and paste form for cleaning, dressing and polishing shoes. Filed Jan. 17, 1948 by Griffin Manufacturing Co., Brooklyn. Claims use since 1890.

BIRTHDAY—This in upper case, fancy, italic letters for bar soap in packaged form. Filed Jan. 22, 1948 by Corona Soapcrafters, Redlands, Calif. Claims use since Jan. 8, 1947.

LESQUENDIEU—This in upper case, medium letters for soap. Filed Apr. 10, 1948 by Lehn & Fink Products Corp., Bloomfield, N. J. Claims use since 1904.

TAMBO—This in upper case, light letters for toilet and laundry soap. Filed Apr. 21, 1948 by Consolidated Cosmetics, Chicago. Claims use since Sept. 11, 1945.

SERGEANT'S—This in upper and lower case, medium letters standing from right to left above the fanciful drawing of a pine cone on which appears the face of a woman and beneath which is a woman's apron and skirted figure for disinfectant. Filed Oct. 28, 1947 by Polk Miller Products Corp., Richmond, Va. Claims use since Dec., 1885 as to "Sergeant's" and since Feb. 21, 1944 on the design.

EUGENE—This in lower case, extra bold letters for shampoos. Filed Oct. 27, 1947 by Eugene, Ltd., Brooklyn. Claims use since May, 1922.

Fanciful drawing of a woman for cream shampoos. Filed Oct. 27, 1947 by Eugene, Ltd., Brooklyn. Claims use since May, 1926.

HOUSTON'S DERRIS MIXTURE—This in upper case, bold letters for "Houstons," upper case open and shadow letters for "Derris," which is beneath the previous word and in the open section of the base of the letter "s" of the word "Derris" and underlining the word is "mixture" for insecticide. Filed Oct. 27, 1947 by Sam Houston Co., Birmingham, Ala. Claims use since Jan. 1, 1937.

BRAS-BRITE—This in upper case, extra bold, italic letters for brass polish. Filed Nov. 12, 1947 by Sherwin-Williams Co., Cleveland. Claims use since Mar. 29, 1905.

SAPONOL—This in large and small upper case letters for wetting and emulsifying agent for use as a soil and spot remover in dry cleaning. Filed Nov. 14, 1947 by Central Laboratories, Utica, N. Y. Claims use since Aug. 15, 1946.

BRITEE MAGIC—This in up-

per case, bold letters for cleaning compound for automobiles, etc. Filed Dec. 5, 1947 by B. & B. Products Co., Mishawaka, Ind. Claims use since Apr. 1, 1947.

TUTCHON—This in large and small upper case, shadow letters, above the first letter "t" of which is a wrist and hand hold a polishing cloth for impregnated cleansing and polishing cloth. Filed Jan. 2, 1948 by Tutchon Products Co., New York. Claims use since Nov. 30, 1947.

DERMATERGENT—This in upper case, extra bold letters for synthetic detergent for the face and bath. Filed Jan. 14, 1948 by Colgate-Palmolive-Peet Co., Jersey City, N. J. Claims use since Dec. 5, 1947.

FOLISAN—This in upper case, bold letters for preparation for shampoo. Filed Aug. 28, 1947 by R. B. Semler, Inc., New Canaan, Conn. Claims use since Mar. 24, 1947.

The fanciful drawing of the face of a bearded man, roughly in the shape of a moon quarter with a circular design in which are white stars on a dark background for shampoos and dentifrices. Filed Oct. 1, 1947 by Procter & Gamble Co., Cincinnati. Claims use since June 1, 1935.

KALO—This in upper case, extra bold letters within an oval for insecticides. Filed Nov. 12, 1947 by Agkem, Inc., Quincy, Ill. Claims use since 1914.

TRIONA—This in upper case, extra bold, black letters for insecticides. Filed Apr. 10, 1948 by Shell Oil Co., San Francisco. Claims use since June 10, 1925.

SELIG—This in upper case, medium reverse letters above the word "Atlanta" on a solid reverse background in the shape of a diamond superimposed on another diamond outline along the four sides of which appear the words, "Quality," "Hygiene," "Sanitary" and "Perfection," respectively, for sanitary floor oil. Filed Aug. 27, 1947 by Selig Co., Atlanta. Claims use since Jan. 22, 1915.

DILAC—This in upper case, extra bold, oversize letters for cleanser in liquid form for removing milkstone. Filed Aug. 2, 1947 by Diversey Corp., Chicago. Claims use since June 4, 1941.

KIRKI—This in upper and lower case, extra bold, script letters for sudsing cleaner. Filed July 5, 1947 by Procter & Gamble Co., Cincinnati. Claims use since March, 1933.

CHURCH & DWIGHT CO., INC.—This in upper case, extra bold letters in the form of an incomplete circle for sal soda for use as a detergent, cleaning and washing agent. Filed July 5, 1947 by Church & Dwight Co., New York. Claims use since 1896.



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SPECIALTY SOAPS

(From Page 42)

polishing the glass and to assist in the rapid removal of oily films from the surface. When isopropanol is used in place of the lower alcohols it is advisable to add a small amount of perfume to mask the unpleasant odor of this solvent.

Detergent, Briquettes, Pastes:

THESE are usually soapless and consist of compressed alkaline salts, such as sodium silicate, trisodium phosphate, sodium carbonate and sodium tripolyphosphate, together with a small quantity of heavy foam producing surface active agent. These briquettes are used in machine washers and in dairies for washing milk churns.

The detergent pastes may be built up of one or several alkalis and synthetic detergents. Trisodium phosphate is a favorite choice as it possesses a high pH and good buffering action, moreover, it is freely soluble in water and is not too harsh on the skin. The addition of bleaching agents such as sodium perborate, is sometimes useful. On account of the water softening and free rinsing properties of sodium tetraphosphate the addition of this chemical to detergent paste is strongly advisable.

Cement Cleaners:

These vary considerably in composition, some have a soap content of 10-12% and contain a high percentage of alkali. These are recommended for unpainted cement floors and all heavy general cleaning. New formulations for cement cleaners make use of petroleum sulfonates which have excellent properties of wetting, dispersing and emulsifying and are particularly suitable for removing greasy soil from cement surfaces. As a class these new compounds are highly resistant to hydrolysis and have a good tolerance for the alkaline earth salts. A suitable cement cleaner consists of unrefined (or refined preferably, if cost will allow) petroleum sulfonate in which is dissolved 10% potash soap and 10% sodium metasilicate.

There are probably a thousand

and one formulation which might well be classed as universal cleaners, that is, compositions suitable for hand dish washing, laundering and various general cleaning purposes. In the writer's opinion the most useful of the so-called all purpose cleaners consist of soap powders with an alkali builder and containing a small percentage of surface active agent to improve wetting property. One well-known detergent composition containing a major proportion of low titer soap has sufficient mild alkali present, e.g. borax, to give a pH of 8.0, and three percent on the weight of soap of a surface active agent of the sulfonated fatty acid amide type.

Another type of universal cleaner suitable for cleaning floors, fabrics, dishes and tiles, etc, consists of 15% commercial fatty alcohol sulfonate, five tetrasodium pyrophosphate and 0.075% pine oil. There is no soap present in this recipe.

So-called universal paint and wall cleaners can be made up of a solution of sulfated fatty alcohol containing ammonia. Useful proportions are:-

10% sulfated fatty alcohol.

20% ammonia.

Balance non-ionized water.

The widely used floor scrub soaps also find many varied applications in the home, office and factory. Popular formulations call for a vegetable oil potash soap base made by saponifying a mixture of vegetable oils, such as soyabean, cottonseed, corn and linseed with caustic potash in a crutcher. The finished soap is usually made available as a paste and is suitable for general floor sanitation and without any harmful effects on painted, varnished, or waxed floors.

Butler Names U. S. Reps.

Coaltar Chemicals Corp., 420 Lexington Ave., New York, was recently appointed American representative for Wm. Butler & Co., Ltd., Bristol, England for the latter company's line of coal tar chemicals. In addition, Coaltar Chemicals will continue to carry on its regular business operations as heretofore. Butler Company, which maintains refineries and

ocean installations at Bristol, is the distiller of tar and suppliers of rosin and petroleum since 1843.

BLUINGS

(From Page 46)

use of bluing is hard to tell, but it should be interesting to watch developments.

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TECHNICAL BRIEFS

From Current Literature in the Sanitary Products Field

DDT Analogue

Several thienyl analogues of DDT have been prepared and tested for insecticidal activity. One of them, 2,2-bis-(2-chlorothienyl)-1,1,1-trichloroethane, is considerably less potent insecticidally than DDT except when tested against insects highly resistant to DDT. Qualitatively it resembles DDT in its mode of action in the insect nervous system. This is evidence that the phenyl rings are not essential for producing the biochemical effects of the DDT-type molecule. R. L. Metcalf, *Science* 108, 84-5 (1948).

Toxic Plant Root

The roots of *Heliopsis longipes* contain a material highly toxic to houseflies. Petroleum ether extractives were highly toxic to mosquitoes. E. R. McGovran, G. R. Bottger, W. A. Gersdoff, and J. H. Fales, U.S. Dept. Agr., Agr. Research Admin., Bur. Entomol. Plant Quarantine E-736, 5pp.

Aspects of Disinfection

An investigation into the bactericidal activity of a water-insoluble phenol (5-chloro-2-hydroxy diphenyl methane) dissolved in a solution of potassium laurate has shown that solubilization commences at the critical concentration for initial formation of micelles, and that the bactericidal activity of the phenol soap solutions is a function of the concentration of the phenol in the micelles. This knowledge should be of use in the formulation of disinfectants, and it is hoped that it may throw light on the complex physico-chemical phenomena which play such an important role in bactericidal activity.

In the problems of cleaning glasses, crockery, and dairy utensils, evidence shows that the excellent results with hypochlorites and quater-

nary ammonium compounds which have been obtained in the laboratory, cannot be reproduced by laymen in practice. More detailed instructions appear to be needed and issued with these products. Much contamination can be removed from surfaces mechanically by detergents; disinfectants should be used afterward only as a precaution. Also, thorough initial cleansing removes organic matter which would seriously reduce the efficiency of disinfectants. *Manufacturing Chemist* 19, 312-5 (1948).

Action of "Castrix"

In rats, mice, guinea pigs, rabbits, and dogs, 2-chloro-4 dimethyl-amino-6-methyl pyrimidine ("Castrix") produced symptoms typical of central nervous system stimulants. Convulsions occurred 15-45 minutes after oral or intraperitoneal administration. "Castrix" is more toxic to rats than either *alpha*-naphthyl thiourea or sodium fluoroacetate. Diets containing 0.25-1.0 per cent of "Castrix" are readily eaten. K. P. DuBois, K. W. Cochran, and J. F. Thomson, *Proc. Soc. Exptl. Biol. Med.* 67, 169-71 (1948).

Fungicides for Leather

Phenyl mercuri-9-acetoxy-12-octadecanoic acid, *para*-nitrophenol, *para*-chloro-*meta*-xylenol, 2,3-dichloro-1,4-naphthoquinone, 2,3,4,6-tetrachlorophenol, *para*-chloro-*meta*-cresol, 2,4,5-trichlorophenol, and sodium ethyl mercurithiosalicylate, were good to excellent inhibitors of the growth of *Trichophyton interdigitale* and *Epidermophyton floccosum* in chrome-retanned shoe leather. The last four compounds were as effective after leaching as before. Sodium mercurithiosalicylate gave outstandingly good results. The last six compounds retained their full inhibiting action

during two months' storage. In the other instances the ability of the chemical dubbing mixtures in preventing growth of the test fungi was lessened to varying degrees by leaching and by storage. D. E. Klemme and A. C. Baldwin, U.S. Dept. Agr., Circ. No. 758, 18pp.

Finding BHC Isomer

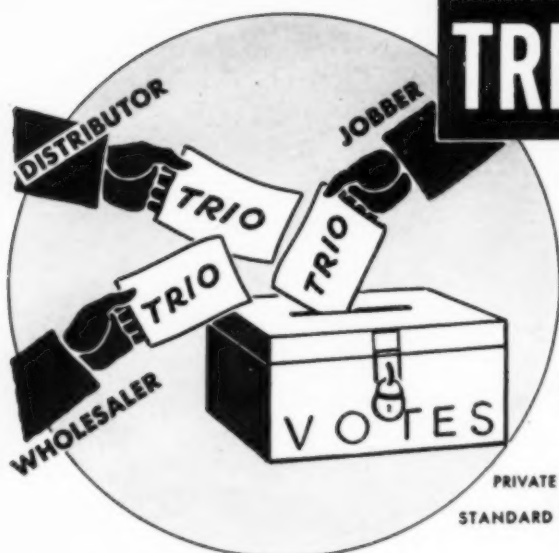
A partition chromatographic method for determining the *gamma* isomer in benzene-hexachloride products has been developed with use of nitromethane and *n*-hexane as partition solvents. The supporting medium is silicic acid. The method is sufficiently convenient and rapid for routine production analyses, and requires no expensive equipment or specially trained personnel. The accuracy is about two per cent based on the actual *gamma*-isomer content of synthetic mixtures of the isomers. The process appears to be adaptable to determination of some of the other isomers and related constituents. O. T. Aepli, P. A. Munter, and J. F. Gall, *Anal. Chem.* 20, 610-13 (1948).

Benzene Hexachloride

Using the housefly as a sensitive test insect, a bio-assay method has been developed for the *gamma* isomer of benzene hexachloride. Examination of the tissues of rats fed the *gamma* isomer, showed the presence of a substance having characteristics toxicologically identical to that of the *gamma* isomer. The toxicant was widely distributed in the body. E. P. Lang, *J. Pharmacol.* 93, 277-81 (1948).

Paint Mildew Inhibitors

An examination of various means of improving the mildew resistance of paint was prompted by the increasing scarcity of zinc and lead pigments. Twenty-three inhibitors were used in tests over a period of five years on vertical test fences. Indications are that phenyl mercuric oleate is outstanding among inhibitors for white paint, while red copper oxide leads in tinted paints. The effect of the prime pigment, modifying pigments, extenders, and vehicle, on mil-



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dew control are definite. Zinc oxide has a marked effect at a concentration of 2.5-3 pounds per gallon. Basic lead carbonate or sulfate is not effective as a mildew-resistant pigment.

Calcium carbonate is the best of the extenders, possibly because of the slight alkalinity imparted to the paint. Linseed oil when bodied is more resistant than unbodied refined oil, and is better than soybean or fish oil. Use of phenolic resin as a fortifying agent is better than alkyl resins. Finding a nontoxic, nondiscoloring mildew inhibitor for paint is of paramount importance. W. G. Vannoy, *Official Digest* Federation Paint & Varnish Clubs No. 277, 163-75 (1948).

Wettability of Sprays

Surface-active agents are important ingredients of sprays to make them high in wetting power. The spreading coefficient is a fairly satisfactory measure of wetting tendency, but surface-tension measurement is inadequate. F. Wilcoxon and R. L. Morgan, *Ind. Eng. Chem.* 40, 700-2 (1948).

Solubilization of a Phenol

Results of the examination of the bactericidal activity of a water-soluble phenol (5-chloro-2-hydroxy diphenyl methane), using potassium laurate as the soap, have shown that solubilization of the phenol commences at the critical concentration for initial formation of the micelles, and that the bactericidal activity of the solution is a function of the concentration of the phenol in the micelle. Maximum bactericidal activity, as measured by the death time of *B. coli*, is attained when the micelles are fully saturated with the phenol. H. Berry and H. S. Bean, *Nature* 161, 396-7 (1948).

Agents for Athlete's Foot

Salicil, benzetrol, and diethyl stilbestrol inhibit various strains of *Trichophyton* at 1:20,000. Diethyl stilbestrol inhibits *Microsporum audouinii*, associated with *Tinea Capitis* at 1:40,000, and *Coccidioides immitis* at 1:80,000. B. Heinemann, to Bristol Lab., *J. Investigative Dermatol.* 9, 277-9.

Moth Preventives

The sodium salts of aminoaryl sulfonic acid derivatives such as that of 2'-chloro-4-lauroylamino diphenyl ether-2-sulfonic acid, are moth preventatives for treatment of animal fibers. J. R. Geigy A.-G. Swiss Patents 215,331-4.

Control of Sandflies

The control of sandflies was effective by spraying a five per cent solution of DDT in kerosene at 1-1.5 gallons per 1000 square feet on the inner walls from floor to ceiling, especially the corners and upper part of the walls, the doors, windows, and screens. For a greater margin of protection, the outside of the openings together with a foot or two of the surrounding wall should also be sprayed. M. Hertig and R. A. Fisher, *Bull. U.S. Army Med. Dept.* No. 88, 97-101.

New Rodenticide

The rodenticides at present in common use have the disadvantage that they act rapidly and produce acute symptoms of poisoning even when eaten in sublethal doses. This results in the troublesome condition of "bait-shyness" in the rat colony and makes 100 per cent eradication a matter of considerable difficulty.

It was postulated therefore that the ideal rat poison would be a slow acting one. It must be acceptable to the rat and effective when incorporated into the bait in such small amounts that its presence will not be detected. It must be lethal. No symptoms should be produced that the rat is likely to attribute to the food it is eating, thus avoiding bait shyness and the necessity for prebaiting. Death should be sufficiently delayed to ensure that all the rats have eaten a fatal dose and the manner of death should be such that surviving individuals will not become suspicious of its cause. The poison should be specific for the species it is desired to destroy, although this is not strictly essential if the danger to man and domestic animals from accidental ingestion can be mitigated in other ways. The comparatively new drug, dicoumarin, has been found to fulfill these stringent conditions.

Dicoumarin is 3,3-methylenebis-4-hydroxy coumarin. When administered orally it causes a reduction in the coagulating power of the blood, so that even trivial injuries are followed by fatal hemorrhages. If the drug is administered in frequent small amounts over a period, which varies for different species, spontaneous hemorrhages occur in the tissues and are rapidly fatal.

Using standard albino rats it has been found that on a normal diet to which two mg. of dicoumarin are added daily, the rats survive only 14 days on an average. The average fatal dose of 28 mg. compares more than favorably with most of the poisons in use at present. Dicoumarin is not excessively toxic to man and dogs, so that its use as a rodenticide should not involve any great danger from accidental ingestion. J. A. O'Connor, *Research* 1, 334-6 (1948).

Tick Repellents

Butyl acetanilide, having shown excellent repellency against both nymphs and adults of *Amblyomma americanum* for 10 days, is the best of the materials tested from the standpoint of maximum repellency, highest average protection, persistence of effectiveness, and consistent performance. Its value for practical application as a tick-repellent is strongly indicated; incidental observations suggest that it affords complete protection against chiggers. No data are available on toxicity, but related compounds have been pronounced safe.

Benzyl cyclohexanol and phenyl cyclohexanol, while less persistent in effectiveness, gave evidence of adequate protection for five and three days, respectively. Their possible usefulness is suggested. Although erratic in performance and not giving the desired amount of protection, the use of benzyl benzoate and dimethyl phthalate, especially in the absence of the more promising compounds, is suggested. Because of insufficient protection or erratic performance, or both, the use of dibutyl phthalate, and the 6-2-2 mixture is not indicated. J. M. Brennan, U.S. Public Health Repts. 63, 339-46.

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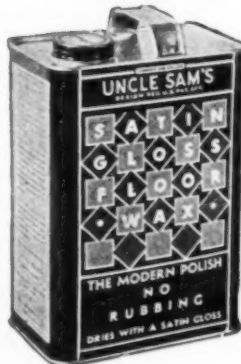
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The New Rodenticides

A comparison is made of the two rodenticides developed in this country and one developed in Germany during the war. They are "Antu," sodium fluoroacetate or 1080, and the German "Castrix," which chemically is 2-chloro-4-dimethyl amino-6-methyl pyrimidine. "Castrix" is about five times more toxic to albino rats than "Antu" and sodium fluoroacetate. The LD₅₀ of "Castrix," given intraperitoneally is about one mg./kg. for rats; it is readily acceptable and highly toxic when placed in the diet. Its widespread use may constitute a danger to animals and to man, but poisoning from it can be successfully treated with barbiturates.

Young rats rapidly acquire tolerance to "Antu" or to squill. The product, "1080," is lethal to many species besides rats and must be used with discretion. No effective means is known for treating accidental poisoning from it of dogs and cats. K. P. DuBois, *J. Am. Pharm. Assoc., Sci. Ed.* 37, 307-10 (1948).

Nitrofuran Fungicides

Two nitrofur derivatives, 5-nitro-2-furfuryl methyl ether, and 5-nitro-2-furaldehyde oxime, show strong fungicidal activity against a number of the *Trichophyton* fungi including *T. interdigitale*, and against *Epidermophyton albicans*. An emulsion base proved to be the best vehicle for the agent, in terms of fungicidal activity. W. C. Ward, J. P. Prytherch, and D. L. Cramer, *J. Am. Pharm. Assoc., Sci. Ed.* 37, 317-9 (1948).

Polish Ingredient

Polishes for various purposes can be made by condensing an aromatic amine with a saturated or unsaturated fatty acid having at least 12 carbon atoms, and mixing this condensation product with a suitable wax or solvent. Koray Ltd., C. D. Moore, and R. F. Ball, British Patent No. 577,515.

Control of Japanese Beetle

DDT and chlordane sprays have largely replaced lead arsenate for control of the Japanese beetle. For the larvae, DDT applied to the soil

gives efficiency for five years and more, while chlordane gives more rapid control. The length of the residual effect of chlordane in the soil is not known. It is probably not much beyond one to two years. J. C. Schread, Connecticut Agr. Expt. Sta., Circ. 166, 8 pp. (1948).

Insecticide Structure

The insecticidal properties of flavanones and chalcones were studied in relation to chemical constitution. The toxicity of some hydroxy and methoxy flavanones and chalcones to fresh-water fish formed the basis of study. The flavanones resemble the flavones in general. Methyl ethers of flavanones are less toxic than the corresponding flavone derivatives. With the hydroxy compounds the reverse is true. With chalcones the symptoms develop more slowly but last longer. Methoxy chalcones are less toxic than the isomeric flavanones except when a number of hydroxy groups are present. When all the hydroxy groups are methylated the toxicity increases. N. Narasimhachari and T. W. Seshadri, *Proc. Indian Acad. Sci.* 27A, 128-31 (1948); through *Chem. Abs.*

Mothproofing Compound

Urea derivatives containing at least one sulfonic acid group and one halogen-substituted ring, may be used for impregnation of furs, feathers, and fabrics, to make them mothproof. J. R. Geigy A.-G. Swiss Patent No. 220,682.

Terpineol as Synergist

The toxicity of technical gamma-hexachloro cyclohexane to the granary weevil was sharply increased by addition of terpineol. Aqueous suspensions were used. The synergistic effect of terpineol was less marked on highly purified gamma isomer than on the technical grade. Terpineol alone was somewhat toxic, but the effect of the combination was more than the separate effects added together. For example, the LD₅₀ of technical hexachloro cyclohexane was 0.024, with 10 per cent terpineol it was 0.008, and that of terpineol itself was 0.08. M. Raucourt and G. Viel, *Compt. rend.* 226, 1541-2 (1948); through *Chem. Abs.*

Floor Wax

The difficulty of emulsifying ouricury wax may be overcome so that it can be used as a replacement for carnauba. The proper proportions of ouricury wax and paraffin yield emulsions with properties superior to those obtainable with either alone.

Melt 12.5 grams of ouricury wax and 12.5 grams of paraffin having a melting point of 142°F. Add three grams of oleic acid and 2.25 grams of aminopropanol to the molten mixture at 212°F. Dissolve 0.5 gram of borax in 15 grams of water, heat to boiling, add to the melted wax and stir. Add 200 grams of water to get a dispersion.

To prepare a polish, dissolve 12 grams of morpholine in 175 grams of water at 150-80°F. and stir in 30 grams of Manila Loba C ground gum. Strain and add 35 grams to the ouricury wax emulsion. The product may be used as a floor wax. L. M. Prince, Jr. U. S. Patent No. 2,441,842.

Light Effect on Pyrethrum

Experiments were carried out to determine the effect of light on the duration of insecticidal activity of pyrethrum dissolved in different solvents. Films of the material were deposited on sheets of paper and after exposure to different light conditions, the sheets were tested for insecticidal activity against larvae of *Ephestia clutella*.

It was found that the period of effectiveness decreases with the intensity of the light to which the film was exposed. The toxic principles degenerate rapidly when exposed to direct sunlight, but remain active much longer in subdued light. Pyrethrum dissolved in white oil lost its activity more rapidly than pyrethrum in kerosene. R. G. Nel and G. E. A. Mathew, Union S. Africa, Dept. Agr. and Forestry, Sci. Bull. No. 239, 13.

Polychlorocyclane

A dust containing 4.5 per cent of polychlorocyclane sulfide in talc killed fleas and houseflies in Petri dishes, and was effective in eliminating fleas from a dog. R. Laurans, *Bull. soc. path. exotique* 39, 295-9; through *Chem. Abs.*

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Lawrence Leaves Winthrop

Dr. C. A. Lawrence, head of bacteriology control and technical director of the Roccal Industrial Division, Winthrop-Stearns, Inc., New York, with headquarters at Rennsaelear, N. Y., has resigned that post to rejoin the faculty of the University of Michigan at Ann Arbor. Dr. Lawrence was also chairman of the Disinfectant Scientific Committee of the National Association of Insecticide and Disinfectant Manufacturers Association, a post for which he had just been chosen. No successor has been named for him at Winthrop-Stearns Co., nor for his N.A.I.D.M. post. He had been with Winthrop-Stearns for about 10 years, having been appointed technical assistant for the Industrial division in 1946.

Mosquito Groups to Meet

The California Mosquito Control Association will hold its annual conference jointly with the American Mosquito Control Association at Berkeley and Oakland, Calif., Feb. 6-9, 1949, it has just been announced. A field trip to observe the work and problems of a number of California Mosquito Abatement Districts will be held Feb. 10-15, following programs during the previous three days devoted to discussions of all phases of mosquito control work.

Aer-a-sol Names Rader

Charles O. Rader, formerly commercial sales promotion manager of Koppers Co., Pittsburgh, was recently appointed sales manager of the Aer-a-sol Products division of Bridgeport Brass Co., Bridgeport, Conn. Prior to going with Koppers in 1946, Mr. Rader had been with Lever Brothers Co., Cambridge, Mass., as division sales manager and assistant to the division manager in Pittsburgh. He had been with the sales organization of Lever Brothers since March,

1933. Originally connected with the advertising department of Koppers, Mr. Rader later was appointed com-



CHARLES O. RADER

mercial sales promotion manager in the sales department, central staff.

The appointment of Mr. Rader as sales manager for "Aer-a-sol" products will initiate a new program of marketing in the division, according to John H. Mills, manager of the Aer-a-sol Products division. New products in the "Aer-a-sol" line will be introduced on the market very shortly, he stated.

Mr. Rader is a native of Indiana and a graduate of Butler University, where he majored in business administration and accounting.

Colorado Honors Rohwer

S. A. Rohwer, assistant chief of the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, Washington, D. C., received an honorary Doctor of Science degree from the University of Colorado, Aug. 28.

Murielle North to Bocon

The appointment of Murielle H. North, who has just joined the firm, as manager in charge of advertising and public relations was announced recently by Bocon Chemical Corp., New York.

H. I. Klauber Dies

Harry I. Klauber, president of Klink Chemical Corp., Brooklyn, manufacturers of moth preventives and dry cleaning compounds, died of a heart attack in his home on Staten Island, N. Y., Sept. 30. He was 58 years old. Mr. Klauber as a native of Brooklyn and a graduate chemist of the University of Virginia. His wife died earlier this year. He is survived by two brothers and two sisters.

Sanitary Supplies Stolen

Two employees of J. A. Meinhardt Co., Chicago, were arrested recently on charges of systematic thefts of company stocks, which, it is charged, were resold by the two men through the operation of a dummy company. The alleged thefts took place during the past two years. Involved were Karl A. Hoff, plant superintendent, and a truck driver, J. E. Daughenbaugh, whose arrest followed a police cartage detail investigation of the disappearance of a C.O.D. package. Soap powders, pine oil, deodorants and other products including 425 pound drums of caustic soda were alleged to have been taken.

Lee Joins MGK

Joseph E. Lee, formerly connected with Westvaco Chemical Corp., New York, recently joined McLaughlin Gormley King Co., Minneapolis, as Central States sales representative. He will be stationed in the Chicago area and has his headquarters at his residence, 805 Reba Place, Evanston.

Multiwall Bag Meeting

The first in what is expected to be an annual sales meeting was held by the Multiwall Bag Division of St. Regis Sales Corp., New York, at the Waldorf-Astoria Hotel, New York, Sept. 23 and 24. All sales personnel of the division from all parts of the U. S. were on hand for the meeting.

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E. H. Hufnagel Ends Life

Edward H. Hufnagel, 69, who in recent years operated Norma Chemical Co., a silver polish and anti-tarnish compound manufacturing concern in Mount Vernon, N. Y., shot and killed himself at his home in Mount Vernon, Oct. 2. He was the retired proprietor of a Mount Vernon jewelry store and had acted as a real estate broker. He had been suffering from a heart ailment for some time and was to have entered the hospital Oct. 4.

Eastern Penna. PCO's Meet

The regular quarterly meeting of the Eastern Pennsylvania Pest Control Association was held at the Lyscoming Hotel, Williamsport, Pa., the evening of Sept. 17. D. L. McCullough of Sanitary Exterminating Co., Williamsport, president of the Association, presided. Following a quiz contest, Richard Schmidt of Capitol Bakery, Williamsport, gave a detailed report on the Williamsport Rat Control Program. Arthur H. Richard of A. H. Richards & Sons, Wilkes-Barre, Pa., vice-president, took over the meeting during the reading of the various committee reports. The guest speaker of the evening, Dr. Hubert Frings of Pennsylvania State College, discussed the Short Course to be given at his school during April. A preview of the course was given by Dr. Frings, who also reported on his work with chlordane and its toxicity. Martin Meyer of Theodore Meyer Estates, Philadelphia, presented a comprehensive report on the Purdue conference, held last spring. A. E. Ritt of Vogel-Ritt, Inc., Phila., spoke on the subject of "Business Ethics."

The next quarterly meeting of the Eastern Pennsylvania Pest Control Association will be held in Philadelphia, Thursday, Dec. 16.

N. A. Sankowsky Dead

Nicholas A. Sankowsky, 62, a research chemist with Standard Oil Co. in Linden, N. J., for 21 years, died at his home of a heart attack, Oct. 4. He held patents for processes he had developed to produce improved insecticides. Mr. Sankowsky was born in Moscow and had lived in the U. S. for 39 years.

Hauser Lowell Sales Head

Philip L. Hauser, who joined the firm a year ago, was recently appointed general sales manager of



PHILIP L. HAUSER

Lowell Manufacturing Co., Chicago. Prior to going with the Lowell he was assistant sales manager of P. & F. Corbin, New Britain, Conn., hardware manufacturers. His 17 years of service with that firm were interrupted during the war when he served for two years in an executive capacity for the United States Government in South America.

Hess & Clark Health Plan

A health protection plan covering the firm's 160 employees was established recently by Dr. Hess & Clark, Inc., Ashland, O., veterinary specialty manufacturers. The company has concluded an agreement with the Akron (O.) Hospital Service, which provides hospitalization as well as surgical and obstetrical care for employees and their dependents, according to an announcement by H. Marshall Clark, president.

Peterman May Discontinue

Reports were circulated in the trade at press time that William Peterman, Inc., a subsidiary of Bristol-Myers, Inc., New York, had withdrawn from the insecticide business. Although company officials would not confirm the reports, it was learned that Donald Dean, general manager and Heber Donahue of the technical staff are no longer with William Peterman, Inc.

Rat Exhibit at Fair

Chicago's urgent rat control problem was dramatically presented to visitors at the Cook County Fair in that city last month in an exhibit installed by the U. S. Public Health Service, cooperating with the Chicago-Cook County Health Survey. Photographs were displayed showing actual rat damage done in Chicago while others depicted protective measures.

Another exhibitor at the fair, Chicago Exterminating Co., featured its fly and mosquito exterminating service and displayed spraying equipment furnished by H. D. Hudson Mfg. Co., Chicago. Velsicol Corp., Chicago, stressed the use of its insecticides.

More "Rodan" Advertising

An extensive advertising campaign in national magazines, farm publications and newspapers in major marketing areas will be conducted during the fall and winter months by Walsh Laboratories, Inc., Chicago, on behalf of its rodenticide, "Rodan." The product contains "Antu" and rat bait and is packed in dry-kibbled form, ready for use. "Rodan" comes in one and five pound cans and in 10, 25, 50 and 100 pound drums. The present advertising campaign is the largest ever undertaken by the company, according to its president, John J. Walsh. National advertising will be supplemented by dealer-cooperative, newspaper and radio advertising.

Hill Termite Brochure

Hill Termite Control Systems, Memphis, recently issued a brochure on their activities in the field of termite control. The Hill system which emphasizes stopping termites in new construction before they start, is usually installed at time of construction. It calls for the installation of a series of slotted pipes in all inaccessible areas, including dirt filled porches, sun parlors, stoops, steps, fireplaces, etc. Then, annually, a perforated pipe is inserted into the slotted pipes and all inaccessible areas are treated with a toxic material. In addition to the use of pipes, there is thorough treating of soil with a toxicant at all possible entry points.

GUM ROSIN

A PRODUCT OF THE LIVING PINE



THE SOUTH'S OLDEST INDUSTRY?

DATING from earliest Colonial days, one of the South's oldest, if not the oldest industry, was the manufacture of GUM ROSIN from the gum of the living pine tree.

GUM ROSIN is the *original, standard* rosin preferred by users because it is a pure, natural product.

Available in bags, drums and tank cars in all standard color grades. Uniformity to meet requirements. Consult your local supplier for prices and specifications, or write

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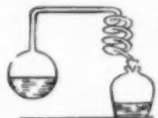
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New Fungicidal Lotion

A new product designed primarily for veterinarian use and stated to have insecticidal and germicidal properties as well as its main purpose as a fungicide is being put on the market by E. J. Fay, New York, under the name of "Fay's Fungicidal Lotion." The product is based on dihydroxydichlorodiphenyl methane and contains pyrethrum extract as an insecticide. The new lotion, according to the manufacturer, is non-toxic, non-irritating and free from offensive odor. It is recommended for use on pets as a defleaving and delousing agent, and for treating kennels, stables and similar places. The manufacturer is located at 256 W. 31st St., New York 1.

Cavanagh Nominated

Joseph Cavanagh, recently retired head of the Agricultural Chemical Sales Division of Dow Chemical Co., Midland, Mich., is the Republican nominee for state representative for the Midland district in the Michigan State Legislature. He won the nomination in a hotly-contested primary election held Sept. 14. Inasmuch as no nomination has been made for this district by the Democrats, the election of Mr. Cavanagh in November is stated to be virtually assured. Mr. Cavanagh continues to act in a consulting capacity for the Dow Agricultural Chemical Sales Division, of which W. W. Allen is now the manager.

Gerlach Has New Duties

The appointment of Charles F. Gerlach as technical service manager of agricultural chemicals for Michigan Chemical Corp., St. Louis, Mich., was announced by the firm during September. He joined the company in May, 1946, as chief entomologist and for the past two years has had charge of field experiments. In connection with this work he has travelled extensively in the U. S. In his new capacity he will coordinate the various technical work related to the company's insecticides and related products. He is a graduate of Wisconsin University where he specialized in entomology.

Contest Winner Named

Banner Chemical Products Co., Newark announced recently the name of the winner of a contest to name its new cleaner. The winner, Mrs. Irving Petchaft of Janitorial Supply Co., Passaic, N. J., suggested the name "Dirt's Away."

New Breuer Vacuum

A new line of "Tornado" heavy duty, industrial vacuum cleaners was announced recently by Breuer Electric Manufacturing Co., Chicago. Built in four sizes, powered by two, three, five and 7½ horse power motors, and explosion proof if desired, these machines have static water lifts ranging from 60 inches to 105 inches, with air velocities from 315 m.p.h. to 480 m.p.h., moving 200 to 360 cubic feet of air per minute. They are portable and are fitted with eight inch ball bearing casters for easy mobility. A low center of gravity reduces the possibility of tipping and compact design features greater accessibility to congested areas. Another feature of the new line is a self-cleaning air filter of approximately 1,000 square inches. The filter is located in the vacuum head and may be operated by a vacuum-blowing lever. The machine can be changed from suction to blowing by moving the lever. The blowing feature is useful for blowing dirt out of places inaccessible to the vacuum cleaner or suction. Wet and dry substances can be picked up by the machines, which have two intakes which can be used simultaneously by two operators. The intakes can be used with either 1½ or two inch hose sizes and attachments. The new vacuum has a tank capacity of 60 gallons.

Wax Importers Form Assn.

Frank B. Ross, president of Frank B. Ross Co., Jersey City, N. J., was elected president of the newly formed American Wax Importers and Refiners Association at its organizational meeting held recently at the New York Athletic Club. The new association, which will maintain offices at 36 W. 44th St., New York, has an initial membership of 20 firms. Other officers include: Jack L. deLyra of Wessel, Duval & Co., vice-president; John J. Garvey, Mamaroneck Chemical Corp., and W. Gantenbein, Distributing and Trading Co., secretary and treasurer, respectively. In addition to the president and vice-president, the board of directors is composed of Charles S. Bullock of Strahl & Pitsch, Inc.; Andrew J. Bohart, Stein Hall & Co.; and Lewis M. Argueso, Lewis M. Argueso & Co.

Albert Calderon Dies

Albert Calderon of Calde Exterminating Co., New York, died Aug. 22 after a lengthy illness. Active in the affairs of the National and New York Pest Control Associations, he is survived by his wife and two children. Mrs. Calderon will continue to operate the business.



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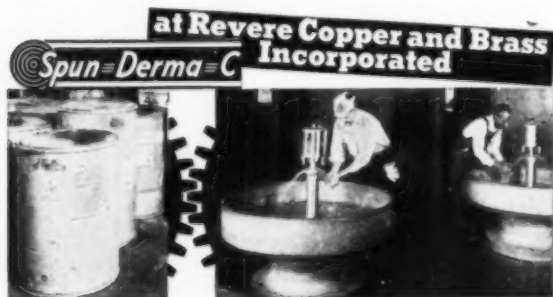
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Revere Copper and Brass Incorporated knows that the hand cleaner provided can help make or break the best washroom facilities—that's why Spun-Derma-C has been in Revere's dispensers for 8 years giving employees the last word in quick, thorough cleaning and protection against chapped, sore hands. So soft and gentle it's used in showers, Spun-Derma-C still removes all grease, paint, tar, and grime quickly without irritating the most sensitive skin.

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	Turpin Hydrate
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NEW YORK 4, N. Y.

New Powdered Soap Unit

A new type powdered soap dispenser that features a throw-away cylindrical cardboard container for the soap, which is replaced when empty by a similar refill, was announced recently by General Manufacturing & Engineering Co., Chicago. The new dispenser is of the metal wall-bracket type that can be removed for refills. The new "Bantam" machine is designed to take a cylindrical cardboard tube, three inches in diameter and six inches high. The bottom end is metal, the top end is open and threaded. After the cylinder has been packed, the open end is capped for shipment. Tubes may be packed 24 to a case. After the installation of the dispenser wall bracket, a cardboard soap cylinder is fitted on the bracket-dispenser by removing the cap and screwing the dispenser on to the threaded end of the tube. The assembly is then inverted and slipped into the wall bracket. When the tube of powdered soap has been used up, another tube replaces it. The new dispenser features water-repellent labels, air tight enclosure, absorbent surface on the inside of the tube to insure dry, free-running powder, shuttle type valve and grate type agitator to keep powder flowing.

Cinnamon Oil Fungicidal

In an experiment extracting salt from molds, Sister Mary Petronella Schroeder, a member of the staff of Institutum Divi Thomae, recently discovered that cinnamon oil kills the fungus that causes athlete's foot. Her finding was reported to the ninth annual conference of the non-profit research organization.

New Insecticide Item

American Aerovap, Inc., New York City, has announced a new insecticide dispensing device which is screwed into a wall and has an electric cord for plugging into any outlet. When the switch is turned, the insecticide, held in a cup, is volatilized and invisible particles are dispersed into the air. The device, it is claimed, gives automatic and continuous control of flies, moths, mosquitoes and gnats.

Letter to the Editor

The Editor
Soap and Sanitary Chemicals
Dear Sir:

A recent ruling by the Marketing Administration prohibits the shipment from the main plant of an insecticide manufacturer of insecticides bearing labels which complied with the law of 1910, but which do not comply with the new law. An exception is made, however, to allow for such shipment from a branch warehouse, provided the goods had been shipped to the branch warehouse prior to a certain previous date.

Because of the poor insecticide business during the past three years, we, like other manufacturers, have in stock large quantities of lithographed cans and manufactured goods that have been in our inventories for some time. If this law is enforced, it is going to work undue hardship and may result in putting many of the smaller firms out of business.

I believe that every insecticide manufacturer should write his Congressman and ask that a bill be introduced in Congress to set aside the whole labeling problem for at least two years and to allow manufacturers to dispose gradually of their stocks bearing labels which have complied with the law of 1910. There is no question in my mind but what the situation would have been entirely different had the insecticide business been at all normal over the past few years.

The fact that many States have set up new economic poison laws is working further hardship on the industry. In some cases it is mandatory that registration fees be paid on merchandise that has been in the hands of retailers and jobbers for some time past and which was sold to them long previous. These same manufacturers, in many cases, have not sold any insecticide in some of these States after the enactment of the new state economic poison laws. I believe that every State should be prevailed upon to extend the time for registration and the payment of fees for at least two years, and that no fees should be collected by the States in any year in which the manufacturer makes no shipments into their State.

These are a few things that would give the industry a chance to clarify labeling and registration problems without undue hardships. Many small business manufacturers doing a scattered business throughout the States find in many cases that the amount of money received for merchandise shipped into a state may not be sufficient even to pay the registration fees of that State.

Trade barriers are something that should be broken down promptly, before they become an insuperable obstacle to conducting a nation-wide business.

Very truly yours,
BALDWIN LABORATORIES
H. W. Baldwin

Lorenz Chemical Co., Omaha, recently announced that they have moved their plant and main office to 25th and L Sts., Omaha 7, Nebr.

A.P.H.A. Meets Nov. 8-12

Two papers dealing with new developments in laboratory control of food sanitation are listed in the preliminary program for the 76th annual meeting of the American Public Health Association, to be held in Boston, Nov. 8-12. The papers are: "Method for Elimination of Bacteriostasis from Quaternary Ammonium Compounds in Swab Rinse Test" by G. M. Ridenour and E. H. Armbruster, and "The Effect of Borax on the Germicidal Efficiency of Alkali Washing Compounds" by Sidney M. Bernstein, M.D., and Max Levine. The papers are to be read at the Food and Nutrition, Health Officers, Laboratory and Engineering Sections, Thursday afternoon, Nov. 11, at 2:30 in Paul Revere Hall, Mechanics Building.

Dobkin Changes Name

Dobkin Chemical Co., recently changed its name to Allied Block Chemical Co. The company is located at Fifth and Bingham Sts., Pittsburgh. J. S. Roth was recently named sales manager for the firm.

New Varnish Remover

Federal Varnish Division, Chicago, recently announced a new "No-Burn" varnish remover that is claimed to be non-inflammable and non-explosive. The product can be used for removing varnish, lacquer, paint, enamel, etc. from any type of surface according to the company.

NSSA Buttons

Red, white, blue and gold lapel buttons carrying the emblem of the National Sanitary Supply Association were mailed to members late last month. Additional buttons are available at \$1.00 each and the emblem mounted on a tie clasp is available for \$1.50.

Calif. Salesmen Golf

The Chemical Salesmen's Association of California held its annual September golf outing at Diablo Country Club, near Danville, Calif., Sept. 17. In addition to golf, one of the highlights of the day was a five-inning soft ball game. Dinner was served to 65 persons.



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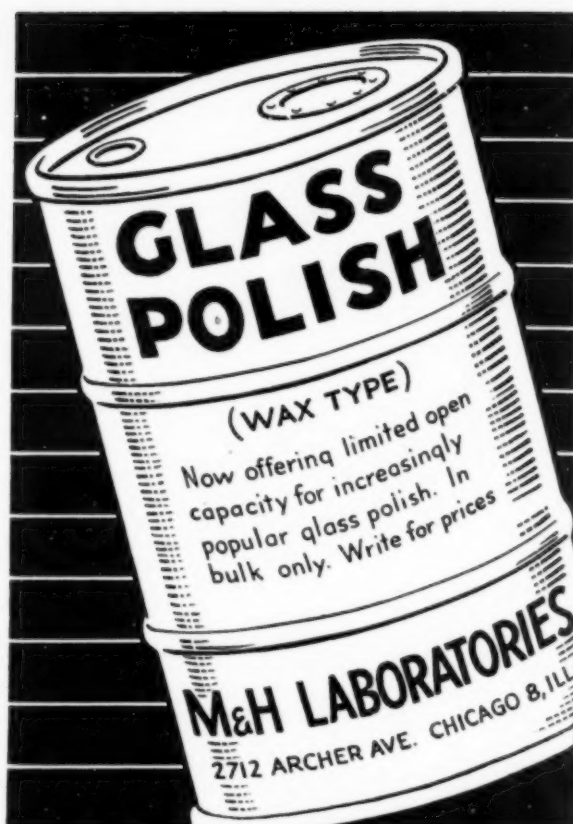
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A refined Steam Distilled Pine Oil designed for use as a "General Purpose" Pine Oil and recommended for those Formulas, Products and Processes in which a good quality Steam Distilled Pine Oil is required.

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Tell Chlordane Results

Chlordane's effectiveness against "DDT resistant flies" and confused flour beetles is discussed in two recent bulletins from Julius Hyman & Co., Denver. The bulletin on chlordane's effectiveness against flies said to be DDT resistant summarizes the report of G. W. Barber and J. B. Schmitt of the New Jersey Agricultural Experiment Station, Rutgers University, New Brunswick, N. J. A second bulletin covered laboratory tests with residual sprays for control of the Confused Flour Beetle, conducted by Richard T. Cotton and J. C. Frankensfeld of the U.S.D.A. Agricultural Research Administration, reported in recent issues of *American Miller and Processor*. The tests purported to show that a five percent chlordane spray was "outstanding in its effectiveness (for beetle control) on cement surfaces. The spray was completely effective on both rough and smooth surfaces in all three types of formulations (emulsion, wettable powder and oil solution). Undoubtedly the fumigatory property of chlordane is responsible for its effectiveness on the most porous cement," the article reports.

Familex 20th Anniversary

Familex Products Co., Ltd., Montreal, Canada, recently celebrated the twentieth anniversary of its founding. The anniversary celebration was held at the newly modernized plant of the company at 1600 Delormier Av., Montreal, and was presided over by the president and founder, Romeo Parent. The company manufactures a full line of waxes, polishes, insecticides, cleaners, cosmetics and allied household items for house-to-house direct sale throughout Canada.

New Deodorant

American Processing Co., Cleveland, recently announced a new odorless deodorant, "Odoroid," to be used in either dry powder form or mixed with water to be washed or sprayed on or near sources of odors and noxious gases. The product is recommended for use in slaughter houses, chemical manufacturing processes, locker rooms, etc.

NAIDM Program Dec. 6-7

A diversified program covering problems relating to sales and distribution, and new technical developments in disinfectants, insecticides and related sanitary chemicals has been scheduled for the 35th annual meeting of the National Association of Insecticide & Disinfectant Manufacturers to be held at the Hotel New Yorker, Monday and Tuesday, Dec. 6 and 7. Carter Parkinson of McCormick & Co., Baltimore, is program chairman for this year's annual meeting. The convention will be composed of four discussion sessions, featured by two group luncheons and the annual dinner and cocktail party, Dec. 7. The NAIDM board will meet Sunday, Dec. 5, as will various committees.

Two papers will be presented on the technical and sales aspects of the newer, residual type disinfectants. Question and answer periods will follow these and most of the other discussion sessions. A review of the marketing possibilities of low pressure type aerosol insecticides will be covered by representatives of government, industry and can companies. Spray type insecticides are also listed for discussion. The subject of insects resistant to DDT will be covered by a government representative as well as by a spokesman for the NAIDM's insecticide scientific committee. Tentatively listed is a prominent member of the Federal Trade Commission or a well known United States Senator. Either or both of these men will cover phases of the recent Supreme Court decision in the cement basing point case. Some light is also expected to be shed on the Quartermaster Corps' industrial mobilization program by a high ranking army officer. A decision on the question of having all sessions closed to members of the NAIDM only is expected to be announced shortly.

Amer. Standard Catalog

American Standard Manufacturing Co., Chicago, recently issued a catalog covering its line of wet mops, applicators and dust mops. Copies are available by writing the company at 2509 S. Green St., Chicago 8.

Discusses QAC Testing

A paper, "A 'Semi-Micro' Method for Testing Quaternary Ammonium Disinfectants" by Dr. Emil G. Klarmann and Eleanore S. Wright of Lehn & Fink Products Corp., Bloomfield, N. J., appeared in a recent issue of the *American Journal of Pharmacy*, published by the Philadelphia College of Pharmacy and Science, 43rd St., Kingsessing and Woodland Aves., Philadelphia 4. The paper points out that two factors interfere with the use of the regular F.D.A. "phenol coefficient" method in the evaluation of quaternaries. It then states that: "A 'semi-micro' method has been developed intended to take care of these factors. It permits retention of the fundamental principles underlying the F.D.A. 'phenol coefficient' method and their application in the testing of these compounds. Bacto-Oxgall was found to be a specific neutralizer of the bacteriostasis produced by them. The results obtained with the aid of the 'semi-micro' testing method, as refined by the use of Bacto-Oxgall in subculture media, suggest that the quaternary ammonium compounds were not entitled to the 'phenol coefficient' figures obtained with the original F.D.A. method; conversely, the latter method does not appear to be directly applicable to the testing of quaternary ammonium compounds.

"No such discrepancy between the results of the original F.D.A. and of the 'semi-micro' methods, respectively, is observed in the case of phenol."

Du Pont Lists Patents


The listing of 4,260 patents held by E. I. du Pont de Nemours & Co., Wilmington, Del., on the Patent Register of the U. S. Patent office as available for licensing, was announced recently by the company.


New Sindar Catalog

A new price list and catalog, divided into five sections dealing with odors for industry, aromatic chemicals, germicides and fungicides, stabilizers, anti-oxidants and anti-skinning agents, was issued recently by Sindar Corp., New York.

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2 Pony Labelrites, Burt, Ermold and World Semi-Automatic and Fully Automatic Rotary and Straightaway Labelers.
Pneumatic Scale Single Head Automatic Capper.
Standard Knapp #429 and J. L. Ferguson Carton Sealers.
Stokes and Smith G1 and Duplex Automatic Powder Filters.
Sweetland, Vallez, Sperry, Shriver and Johnson Filter Presses.
Package Machinery FA, FA2 Hayssen and Miller Automatic Wrapping Machines.
Pneumatic Scale, fully automatic, Carton Forming, Filling and Sealing Machine.
R. A. Jones Model E Automatic Soap Press, 1/2 oz. to 4 1/2 oz. cakes.

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Distributors & Agents Wanted: Expanding Phila. manufacturer requires services of men with selling experience in sanitation products. Name your territory, and experience. No objection to one other kindred line. Address Box 393, c/o Soap & Sanitary Chemicals.

Representatives and Jobbers wanted by nationally known dry cleaning soap manufacturer, to sell dry cleaning soap. Full or part time. Exclusive territory. Write P. O. Box 1166, Richmond, Calif.

Wanted: Distributor and agents to handle full line of household and sanitary chemicals, contacting grocery, hardware, drug and institutional trade. Throughout the country. Name your territory and experience. Address Box 394, c/o Soap & Sanitary Chemicals.

Wanted: Distributor. Throughout country to handle pine oil disinfectants in drum lots. (Canada also). Address Box 395, c/o Soap & Sanitary Chemicals.

Wanted: Distributors and agents wanted by expanding manufacturer to sell our disinfectants, all types, available in drum lots. No objection to other kindred line. Address Box 396, c/o Soap & Sanitary Chemicals.

If you are a Producer of raw materials used by the soap industry and would be interested in southern Ohio representation, Address Box 397, c/o Soap & Sanitary Chemicals.

Extensive Experience, up-to-date technical service, offered, limited time basis only, for research, development, testing, control, plant and process design, instrumentation. PhD, University professor, former dept. head in industry. Fully acquainted all phases pharmaceutical, biological, food and fermentation, fine chemical industries. Best references, proven ability. Confidential professional services. Address Box 398, c/o Soap & Sanitary Chemicals.

Will purchase Immediately—Pneumatic Packaging Machine, used for chips, powder, cleanser; also dry mixers, chip dryers, crutchers, and automatic soap press. Address Box No. 399, c/o Soap.

Wanted: Caustic Soda, Soda Ash — Chemicals—Solvents—Dye-stuffs—Surplus of all kinds. Top

prices paid. Sanders & Sloat, Inc., 129 West 20 St., New York 11.

Wanted—Large engineering firm wishes to acquire several complete soap plants through purchase of (1) capital stock, (2) assets, (3) machinery and equipment, whole or in part. Personnel retained where possible, strictest confidence. Address Box 1215, 1474 Broadway, New York 18, N. Y.

Wanted: Chemicals—Alkalies — Colors—Solvents—Drugs—Oils and Fats. Soaps—Other Supplies. Chemical Service Corp., 92-A Beaver St., New York 5. Tel.: HAnover 2-6970.

Now Available: For Insecticide Manufacturers—A small advertising agency technically equipped to create for you, everything from an individual folder to a complete advertising campaign. Experience with leaders in the field assures results for your products. Address Box 400, c/o Soap.

For Sale

For Sale: Two 200 gallon full jacketed Dopp Kettles with type 'L' Agitator. Also other chemical equipment. Allied Steel & Equipment Co., 1007 Springfield Ave., Irvington, New Jersey.

For Sale: 18 Stainless steel jacketed kettles 30 to 500 gal; 44 Stainless open tanks 30 to 500 gal; 11 Horiz. Dry Mixers 200 to 3500 lb; 7 Double arm HP jacketed mixers 50 to 150 gal. working cap; 4 single arm Paste mixers 50 to 400 lb.; 40 Portable Mixers ¼ to 1 HP. Also fillers, cappers labelers, conveyors, case sealers, filters, condensers, exchangers, stills, grinders. Write for stock list. We buy surplus equipment & plants. Perry Equipment Corp., 1510 W. Thompson St., Phila. 21, Pa., Phone Stevenson 4-1515.

For Sale: Mixing machinery, pumps, storage tanks, water treating system. Plant Equipment Co., 946 Betts St., Cincinnati 14, Ohio.

For Sale: 1-Lehman 4 roll refiner; 2-Shriver 24", 30" cast iron filter presses; 2-Stokes & Smith G1 powder fillers; 3-Mikro pulverizers No. 2TH, No. 3TH; Pumps, packaging equipment, etc., Send for "News Flash." Brill

Equipment Co. 225 W. 34 St., New York 1, N. Y.

For Sale: 1-55-gal drum pine oil; 3- 55-gal drums Lethane 384 special; 1-55-gal drum Lethane #60; 1-55-gal drum Thanite, F.O. B. factory. Any reasonable offer will be acceptable. Write Baldwin Laboratories, Saegertown, Penna.

For Sale: Cans, qts., F. S. plain coated, available 50,000, delivered metropolitan area, \$47. 50M, 15,000 one gals. same, \$.10 each, Address Box 401, c/o Soap & Sanitary Chemicals.

For Sale—Small going detergent business complete with plants, stock of alkalies and other raw materials, packages, trade marks, etc. Located in mid-west. Can be purchased to advantage at this time. For further details, communicate with Box 402, c/o Soap & Sanitary Chemicals.

SOAP PLANT OBSERVER

(From Page 102)

appears doubtful that a high grade toilet soap, for example, could be made. The lye ratio of 0.5 to 0.7 lbs. per lb. of fat saponified at an 0.35 percent glycerine left in soap is a very commendable figure. It is approached however when large scale soap boiling operations are handled by counter current lye transfers. Steam savings are considerable even when balanced against the increased cost of electric power unless such power is very high.

In brief, therefore, there is much to commend such a process to soap manufacturers of fairly large size if care is taken to investigate the points mentioned above.

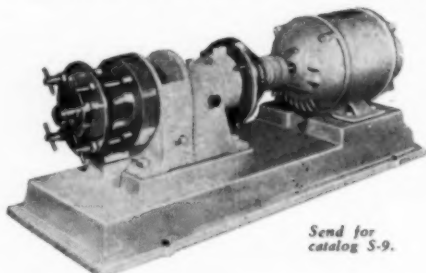
The Procter & Gamble continuous method will be discussed next issue.

Aerosol Article List

A chronological list of publications on liquefied-gas aerosols compiled by R. A. Fulton was issued recently in the form of an eight-page bulletin by the Bureau of Entomology and Plant Quarantine of the U. S. Department of Agriculture. The first year listed is 1942. Mr. Fulton is connected with the Division of Insecticide Investigations of the U.S.D.A.

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